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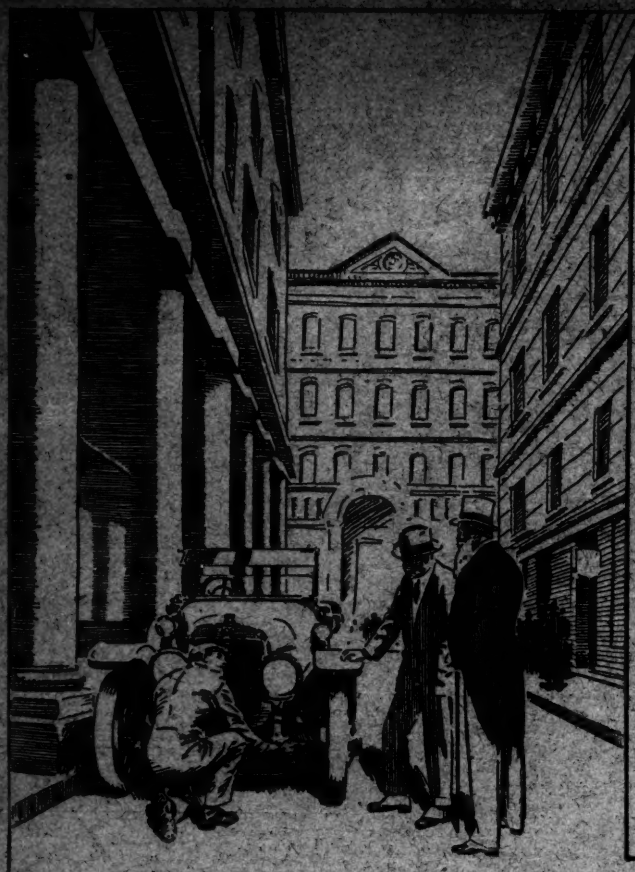

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# THE THERAPEUTIC ADMINISTRATION OF OXYGEN.

BY J. S. HALDANE, M.D., F.R.S.,
OXFORD.

IT is well known that the administration of oxygen often produces at least temporary benefit in cases of serious interference with the respiratory or circulatory functions; but sufficient attention has not hitherto been paid either to what precise benefit may be expected from the administration of oxygen, or to how it can best be administered. In the present paper I propose to discuss both these questions in the light of existing physiological knowledge, and to describe an apparatus designed for the clinical administration of oxygen.

Our knowledge of the physiology of respiration has advanced very rapidly within the last few years, and certain points which have been elucidated in this advance must first be referred to. Under normal conditions the breathing is so regulated as to keep the mean percentage of $CO_2$ in the air of the lung alveoli practically constant at a level which varies slightly for different individuals, but is about 5.6 per cent. The marvellous accuracy of this regulation was a revelation to physiology. A rise of about 0.2 per cent. in the mean alveolar $CO_2$ percentage doubles the amount of air taken into the lungs, while a fall of 0.2 per cent. produces apnoea. The rise in $CO_2$ acts through the blood on the respiratory centre in virtue of the very minute decrease in alkalinity which it causes; and the regulation of the blood alkalinity by the respiratory centre, kidneys, liver, and probably other organs, is so exact that no existing chemical or physical method of measuring variations in "reaction" (hydrogen ion concentration) can detect the more minute changes to which these organs are constantly reacting. For the present purpose it is, however, sufficient to remark that changes in the amount of air breathed are, under ordinary conditions, almost entirely dependent on the amount, not of oxygen, but of $CO_2$ in the blood leaving the lungs, and consequently passing to the respiratory centre. By reducing the $CO_2$ in the arterial blood apnoea can easily be produced in a person blue in the face from want of oxygen; and an animal from the blood of which sufficient $CO_2$ has been removed by forcible artificial respiration is not only apnoeic for a time, but will die from want of oxygen without drawing a single breath.

Want of oxygen does help to excite the breathing, but only in a very limited sense. If air containing a sufficiently low percentage of oxygen to cause slight cyanosis is suddenly breathed, there is an immediate great increase in the breathing; but this soon moderates, while the cyanosis increases and consciousness begins to fail. What happens is that the want of oxygen lowers at once the alveolar percentage of $CO_2$ which is required to excite the respiratory centre. In consequence of the presence in the blood, etc., of a considerable store of preformed $CO_2$ the breathing is greatly increased at once, and remains increased till the preformed $CO_2$ is reduced so as to correspond to the new level. The breathing then quiets down, and in consequence the alveolar oxygen percentage falls still lower, so that cyanosis and the other direct symptoms of oxygen want increase. If the lowering of the oxygen percentage in the air is gradual, or if oxygen want is gradually produced by gradual CO poisoning, or by a gradual ascent in a balloon or aeroplane, there is no evident hyperpnoea. The formidable symptoms (paralysis of movement and loss of consciousness) come on without warning from increase in the breathing. It is a mistake constantly made, but which ought now never to be made, to regard the breathing as a sufficient index of the existence or non-existence of oxygen want. If the breathing is greatly and persistently increased, some other cause is present than oxygen want.

The physiological effects, immediate and remote, of oxygen want must now be considered. When suddenly produced, oxygen want acts almost instantly in increasing the sensitiveness of the respiratory centre to $CO_2$, and so producing an urgent desire to breathe. The rapidity of this action, as compared with the normal and much slower reaction to accumulation of $CO_2$, is the explanation of periodic or Cheyne-Stokes breathing. To produce this sudden reaction (which is less readily produced in some persons than in others) the percentage, or rather the partial pressure, of oxygen in the alveolar air or blood supplying the respiratory centre must, however, fall below normal limits. At high altitudes, or in air with a greatly reduced oxygen percentage, the necessary reduction in the alveolar oxygen pressure occurs quite easily, and periodic breathing is a normal occurrence, which is stopped at once by increasing the oxygen percentage in the air breathed, just as Cheyne-Stokes breathing in a patient is stopped by administering oxygen. Periodic breathing, which is a sign of impending oxygen want, is simply the "hunting" of a too quickly acting respiratory governor, which is constantly overshooting the mark.

As already remarked, the initial hyperpnoea produced by rapid onset of oxygen want is soon relieved by the consequent washing out of $CO_2$ from the blood, provided that this washing out is free to occur. If not, the hyperpnoea will continue, even in spite of relief of the far more dangerous symptoms of oxygen want. Great hyperpnoea accompanied by oxygen want is characterized by marked rise in pulse-rate, palpitation, great rise in arterial blood pressure, and, what is still more remarkable, a simultaneous great rise in venous blood pressure. The latter phenomenon is indicated by distension of the lips, face, tongue, etc., with blue venous blood, distension of superficial veins in the neck and chest, and the other signs of "acute" cyanosis. The high venous blood pressure is very apt to lead to over-distension of the right side of the heart and consequent paralysis of the heart and death. For this reason, free venesection may be of the greatest service in conditions of acute cyanosis. The great and immediate benefit arising from free venesection in acute asphyxial conditions arising from irritant gas poisoning was, so far as I am aware, first pointed out by Drs. Irvine and Macaulay of Johannesburg, and was also independently observed by Dr. Hale White in a case brought to Guy's Hospital. In consequence of their experience, the utility of this mode of treatment in cases of acute cyanosis from chlorine poisoning was pointed out in France, and its success was recorded recently by Captain S. Hebblethwaite, R.A.M.C.[1]

If the washing out of $CO_2$ in the lungs is not interfered with, "acute" cyanosis and hyperpnoea do not occur at all, or are only temporary. The other effects of oxygen want then become more and more prominent. The lips become of a leaden or grey, rather than blue, colour, since they are not distended with blood. Sensibility, mental control, and memory begin to fail rapidly. At a further stage of oxygen want the legs are usually first paralysed, then the arms, and later the head and neck. The senses also go one by one, hearing being the last. If, as often occurs in CO poisoning, loss of consciousness from oxygen want has continued for some hours, ultimate recovery of the central nervous system is very doubtful, and the heart and other organs, such as the kidneys, may also suffer badly, great cardiac dilatation and valvular incompetence, lasting for weeks, being not infrequently observed. The mistake is often made of not grasping the serious, widespread, and lasting effects caused by want of oxygen. Even when the want of oxygen is completely removed these effects remain. This is very strikingly seen in CO poisoning. When an unconscious man is removed from the poisonous air the CO is very rapidly washed out of his blood; but he may still be unconscious, and in a dying condition, with his blood perfectly free of CO, and the cause of the oxygen want thus completely removed. The damage done by oxygen want depends partly on the degree of oxygen want but still more markedly on the duration of the exposure, and it is this latter factor which I wish specially to emphasize, as its importance is seldom realized.

If the degree of oxygen want is slight and only temporary the immediate symptoms are trifling, and may hardly be noticed except on muscular exertion, but if the exposure is continued for some time formidable effects are produced. These are severe headache, nausea, and extreme depression. They are seen typically in mountain sickness, and in the effects of a pretty long exposure to a comparatively low percentage of CO, and they are doubtless mixed up in the clinical picture of many cases of respiratory and circulatory affections. In cases of CO poisoning it is usually after the exposure that the symptoms develop, and in mountain sickness several hours

exposure are usually needed. Those who have experienced the extreme depression of mountain sickness or CO poisoning will readily realize that such a condition may make all the difference between life and death to a patient battling with illness.

From the foregoing remarks it seems clear that a physician ought to make every effort to avert the effects of want of oxygen or cut them short. It may be argued that such measures as the administration of oxygen are at the best only palliative and are of no real use, since they do not remove the cause of the pathological condition. As a physiologist, I cannot for a moment agree with this reasoning. The living body is no machine, but an organism constantly tending to maintain or revert to the normal, and the respite afforded by such measures as the temporary administration of oxygen is not wasted, but utilized for recuperation.

Let us now consider in more detail how oxygen want is produced, what seems to be possible in directly combating it by oxygen administration, and what risks have to be avoided. We may begin with a simple and easily intelligible case—that of poisoning by CO, or by a nitrite, chlorate, or other poison which causes death by disabling the oxygen-carrying power of the blood. In such a case acute want of oxygen is produced by the poison disabling the haemoglobin, so that it is unable for the time to carry sufficient oxygen to support life. Normal human arterial blood carries about 18.1 c.cm. of available oxygen per 100 c.cm. of blood. Of this, about 17.75 c.cm. are combined with the haemoglobin and 0.35 c.cm. are in simple solution. In passing round the circulation during rest this blood loses only about 4.5 c.cm. of oxygen. In poisoning by CO and similar respiratory poisons, death occurs when about 80 per cent. of the haemoglobin is disabled. If the patient is still alive there will, therefore, still be 20 per cent. of his haemoglobin available. But by administering pure oxygen we can at once increase the amount of oxygen in simple solution to about 2.5 c.cm. This promptly averts any further danger from want of oxygen, and in CO poisoning the oxygen rapidly drives out CO from the haemoglobin, so that after fifteen or twenty minutes of continuous administration the oxygen may be discontinued. In poisoning by nitrites, etc., there is also a fairly rapid return of the blood towards the normal, consequent on the gradual elimination or destruction of the poison. Experiments on animals have shown quite clearly that oxygen actually does avert death in the cases just considered.

In acute inflammatory conditions of the lungs there is sometimes also want of oxygen, as shown by cyanosis; and where the inflammatory condition is accompanied by the presence of "oedematous" exudation throughout the lungs the cyanosis is often very great. This condition is seen typically in the acute stages of poisoning by nitrous fumes or chlorine. What is its probable cause? When a portion of the lungs, including even the greater part of both lungs, is entirely blocked by consolidation, as in croupous pneumonia, there is commonly no cyanosis. This indicates that very little blood is passing through the consolidated parts. What passes through the healthy portion is amply sufficient for respiratory requirements during rest. It must be borne in mind that the normal lungs and circulatory organs are adapted for meeting about ten times the respiratory requirements during rest, since the respiratory exchange is often about ten times as great during work as during rest. Hence during rest in bed a very small proportion of normal lung will suffice for meeting respiratory and circulatory requirements, provided there is but little circulation through parts which are useless. But when cyanosis due to a lung affection exists, in spite of the fact that air is entering the whole or a great part of the lungs freely, we seem driven to the conclusion that the entry of oxygen into the blood through the alveolar walls is impeded by exudation and increase in thickness of the alveolar walls.

It is very important to realize that this may occur without any serious impediment to the passage of $CO_2$ outwards. $CO_2$ is about twenty-five times as soluble in water as oxygen, and hence it passes through the alveolar walls far more easily, with a given difference of partial pressure, than does oxygen. Moreover, a comparatively slight increase in the breathing will enormously increase the small difference in diffusion pressure on which the passage of $CO_2$ outwards depends; but the same increase in breathing produces only a slight proportional increase in the diffusion pressure which drives oxygen inwards. Hence we may have cyanosis, and consequently very formidable effects from oxygen want, without marked hyperpnoea. The grey look of the patient's face will be a good index of this. There will probably be no increase of venous blood pressure with its accompanying full blue cyanosis.

If great hyperpnoea accompanies the cyanosis there must be some other complicating condition. This accompaniment is seen typically in the acute stage of poisoning by chlorine or nitrous fumes; and the results of *post-mortem* examination, together with clinical observation during the recovery stage, seem to reveal the cause. In the acute stage the alveolar walls become extensively torn in efforts to breathe despite the blocking of many of the bronchi by exudation or constriction. In consequence of this there is widespread emphysema, which is very evident on *post-mortem* examination. The areas round the emphysematous cavities are partially collapsed and very imperfectly ventilated, so that the $CO_2$ percentage rises in them to an abnormal extent. The emphysematous cavities are excessively ventilated, but this ventilation is of little use since the proportion of sound alveolar wall to air is far too small. In consequence of this the $CO_2$ content of the arterial blood is raised, and hyperpnoea, along with increased arterial and venous blood pressure, results. As the oedema clears up the cyanosis disappears, but the hyperpnoea remains for some days, since it takes a considerable time for the emphysema to heal up.*

When there is cyanosis (whether of the deep purple or grey type) due to hindered passage of oxygen through the alveolar walls, this can be combated by raising the percentage of oxygen in the alveolar air and so increasing the diffusion pressure. The normal alveolar oxygen percentage is about 14, or 7 per cent. less than in the external air. By raising the percentage of oxygen in the inspired air to 35 we raise the alveolar oxygen percentage to 28, and thus much more than double the effective diffusion pressure, since the oxygen pressure in the venous blood passing to the lungs will probably be at least 4 per cent. It will probably, therefore, require only a moderate increase in the oxygen percentage of the inspired air to remove the cyanosis. Even in ordinary cases of croupous pneumonia the alveolar oxygen pressure may be a matter of decisive importance. This is clearly shown by the fact that these pneumonias do very badly at high altitudes. At Cripple Creek (altitude about 10,000 ft.) in the Rocky Mountains I found that this was so well recognized that all cases of pneumonia were put in the train and sent down to the prairie level.

Where, in lung affections, an addition of oxygen to the inspired air is needed in order to combat want of oxygen, it is evidently desirable to continue the administration over long periods. It was shown by Paul Bert that oxygen at a pressure of about three atmospheres is capable of producing convulsions and rapid death; but Lorrain Smith found that, apart altogether from this action on the nervous system, pure oxygen at high pressures produces pneumonia pretty rapidly, and even at ordinary atmospheric pressure acts slowly on the lungs, ultimately producing fatal pneumonia after several days in animals. This effect was even occasionally produced in about four days by a mixture containing only 80 per cent. of oxygen. It is evidently desirable, therefore, to keep the oxygen percentage as low as possible during long administrations, and to know roughly what percentage is being breathed.

In cases where the source of danger is failure of the circulation, the inhalation of oxygen may also be of use, and I have seen the cyanosis in a case of valvular disease clear up at once on the administration of oxygen. The effect was so striking that it could hardly be attributed to the increased amount of oxygen going into simple physical solution in the arterial blood. It seemed more probable that owing to back pressure in the lungs and consequent exudation, etc., there was hindrance to the diffusion of

* It may perhaps be pointed out here that hyperpnoea means increase in the volume of air breathed per minute. The frequency of breathing is no reliable index of hyperpnoea. If in a normal person the frequency of breathing is voluntarily varied from three a minute to sixty a minute, the depth of each breath being left to itself, there will be not the slightest increase in the lung ventilation (as measured by the composition of the alveolar air) when the breathing is at sixty a minute. There are various causes of increased or diminished frequency of breathing, the vagus nerves being specially concerned with the regulation of frequency.

oxygen inwards, and that with the increased oxygen percentage this was overcome. Nothing but practical trial, for which I have at present but few opportunities, will show to what extent, and under what conditions, the administration of oxygen is of use in various pulmonary and cardiac affections. Cyanosis may always be taken as an indication that oxygen inhalation should be considered.

The immediate effect of suddenly giving an abundance of oxygen to a cyanosed person may sometimes be unpleasant, as I well know from experiments on myself and others. The heart may become tumultuous in its action, and the breathing irregular for the time, or the patient may wake up to the realization of pain or discomfort. His respiratory centre may also wake up to reaction against accumulated $CO_2$. It is well, therefore, not to add oxygen too rapidly to the inspired air in cases of cyanosis.

Existing methods of giving oxygen are nearly always very crude and wasteful of oxygen, and it is not possible to graduate efficiently the percentage of oxygen administered. The simple apparatus now to be described is designed to remedy these defects and render practically possible the prolonged administration of air enriched with as little oxygen as will suffice for the purpose aimed at.

An ordinary 20-foot oxygen cylinder is fitted with a pressure gauge and adjustable governor of the type employed in mine-rescue apparatus. By means of the governor the delivery of oxygen can be varied at will from nothing to 10 litres a minute. The oxygen is delivered into a small bag of thin vulcanized rubber of about 2 litres capacity. From this bag there passes to a facepiece on the patient a flexible tube of about five-eighths of an inch in diameter. At its origin from the bag this tube is provided with a non-return mica valve. The last part of this tube is of light and perfectly flexible corrugated rubber tubing of the kind introduced by Mr. Fleuss for mine-rescue apparatus. The facepiece is of the ordinary type, fitting over the mouth and nose, but so designed as to leave a minimum of dead space when applied to the face. It can be secured in position by an elastic strap. Besides an inlet for oxygen, the facepiece has inlet and outlet valves for air, so that if no oxygen is turned on the patient can breathe air quite comfortably and freely. Some air will also leak in and out round the facepiece which need not be at all tightly applied.

When oxygen is turned on it accumulates in the small bag during expiration, since the very slight expiratory pressure in the facepiece closes the non-return valve, and this prevents the issue of oxygen from the bag, and, of course, at the same time prevents expired air from entering the bag. During inspiration the bag is emptied, the oxygen passing into the facepiece and thence into the patient's lungs. If only a little oxygen is turned on the patient will be breathing mostly air, but by turning on more oxygen the proportion of oxygen can be increased till nothing but pure oxygen is being inspired, and the bag does not completely collapse till the very end of inspiration. Thus no oxygen is wasted, and enormous economy of oxygen results, so that prolonged administration of oxygen becomes practicable.

Where prolonged administration of oxygen seems desirable, the minimum quantity of oxygen which will remove the cyanosis should be carefully ascertained by observation of the patient, and the governor adjusted to give this minimum quantity, which is likely to be anything from 1 to 3 litres per minute. The quantity needed will of course depend on the weight and age of the patient; and if hyperpnoea due to $CO_2$ is present, a larger quantity will be needed to reach a given percentage. A man at rest usually breathes about 7 litres of air a minute.

The probable risks of prolonged administration of pure oxygen must be borne in mind, and if necessary balanced against the risks of allowing the oxygen want to continue. No fixed rule can be given. The proper course to pursue must be determined by the physician after careful observation of the patient, and in the light of experience and knowledge. Many points with regard to the utility of oxygen administration are still obscure, owing to the haphazard methods hitherto used in administering the oxygen.

The apparatus is shown in the accompanying figure, and is made by Messrs. Siebe, Gorman, and Co., Westminster Bridge Road, London, S.E. A simple resistance meter can also be supplied for rapidly checking the indications of the governor on the cylinder.

REFERENCE.

[1] BRITISH MEDICAL JOURNAL, July 22nd, 1916.

## MINOR INJURIES TO JOINTS.

BY

FRANK ROMER, LIEUT.-COLONEL R.A.M.C.(TEMP.).

AT the Croydon War Hospital, where we receive every class of crippled limb, I frequently come across cases of ordinary sprains and dislocations where recovery has been delayed from want of suitable treatment in the initial stages. The conditions of active service render men particularly liable to such injuries, but when the medical officers have many serious cases requiring urgent surgical attention, those who are incapacitated by minor injuries are often unable to receive the attention they would otherwise get. It is in no carping spirit of criticism, therefore, that I refer to this point, but with the view of drawing attention to the importance of immediate treatment when dealing with men sustaining these injuries in England, since by so doing they can be returned to duty more quickly than by waiting for treatment at a later date. Delay not only renders recovery more difficult, but prolonged acquaintance with hospital life is apt to sap the *moral* of the men.

A sprain has been described as an incomplete dislocation, and is said to occur where a joint has been wrenched by a force sufficient to overstretch or rupture the controlling ligaments and tendons. It may vary from a condition where the joint is completely incapacitated to a mere deviation from the normal, where pain is only elicited by some particular movement.

Hitherto textbooks have made scant reference to the treatment of these common injuries, yet the disability caused by them often persists long after all active trouble has subsided. Treatment should be directed not only to the relief of the immediate pain but to the prevention of those common sequelae—weakness and stiffness of the joint.

If we examine the history of a sprain—and most of us have at some time or other experienced it—there is the curious sickening and painful sensation of its reception, followed by a sense of numbness, which is quickly followed by swelling of the joint and increase of pain. This pain is due to pressure of the extravasated blood and lymph on the sensory nerves, and the more quickly this effusion is absorbed the sooner may recovery be looked for.

For many years absolute physiological rest, combined

with various ways of applying either heat or cold, was considered the only method of treatment in cases of sprains and dislocations, and, in fact, this idea still holds good in many quarters. Nowadays, however, most surgeons have substituted massage as being a much quicker method of reducing the swelling and restoring soundness. In these days when there are so many well-trained masseurs and masseuses to be obtained it is not necessary to describe the various movements of massage; but it is as well to point out that in the early stages the gentle stroking movements of light effleurage must alone be employed, and should be performed daily for about twenty minutes.

As the swelling subsides, which should happen in the course of two days or so, the massage can become firmer. Deep massage and forced movements in the acute condition will do more harm than good, and unless the masseur can be depended upon it is wiser to postpone the massage to a later stage. I have seen a too energetic masseur cause considerable damage to a tense knee-joint by his misdirected efforts. In the intervals of massage the joint should be supported by a bandage and a certain amount of use encouraged. Little fear need be felt as to the patient doing too much; the difficulty is usually the other way.

The employment of massage from the commencement not only aids absorption of the extravasated material, but by so doing obviates to a large extent the formation of adhesions. Again, together with the gradually increasing use of the joint, after the first few days the wastage of the controlling muscles is to a large extent prevented,

In my own practice, as soon as most of the swelling has subsided, I am in the habit of strapping the joint with an adhesive non-irritating plaster in such a way that only normal movements are possible. I find that the plaster gives more support than a bandage, and consequently the patient uses the joint with more confidence.

In fact, in treating a sprained ankle, no matter how severe, I invariably strap it at once by the method described by Wharton Hood, and enjoin use. It is essential that in the early attempts at walking the ankle-joint be used. To permit the foot to be everted and walking accomplished with a rigid ankle is of no use, and this point must be impressed on the patient.

Those who have not yet tried or seen the effect of such treatment would be surprised at the rapidity of recovery. The plaster, by alternately slackening and tightening on the joint during the toe and heel motion of the ankle, goes through the action of massage, yet it is so adjusted that any untoward movement likely to injure the torn ligaments is checked.

The great point to remember is to apply the strapping so that it fits no tighter than a well-fitting glove. Too tight an application increases the pain, whilst if put on too loosely the massaging effect is lost and the joint is not sufficiently supported.

At the end of three days the plaster will need to be renewed, when it will be noticed that the swelling is considerably less, whilst the portions of the foot above and below the strapping will alone be discoloured by the extravasated blood. In the course of ten days to a fortnight the patient will be walking practically sound, but the joint should be kept strapped for a short time longer.

A sprain of the shoulder often proves most painful and troublesome, and here massage properly administered gives excellent results, since it helps to prevent adhesions in a joint which, above all others, seems most liable to be thus affected. This may probably be due to rotation of the scapula being mistaken for true movement of the shoulder-joint, which in consequence does not receive sufficient attention even by experienced masseurs.

The long head of the biceps not infrequently gets sprained, in such an action as throwing, producing most acute pain. The point to bear in mind is that the ensuing tenosynovitis is apt to spread along the tendon as it dips into the joint, and cause the whole shoulder to be affected.

Treatment for dislocation of the shoulder-joint should be on the same lines as an ordinary sprain, with the addition of a support to the capsular ligament by a strip of adhesive plaster encircling the joint, with a thin pad of cotton-wool in the axilla to prevent chafing. The patient wears his shirt and coat normally, and all underhand movements are permitted. The arm should not be lifted above the level of the shoulder for at least a week afterwards, and then only by the medical man or masseur. No fear need be felt as to the patient doing it himself. I have seen a very large number of these cases and not one expressed the least desire to do so, hence the more orthodox method of keeping the arm strapped to the side is not necessary. I have not only never seen any bad result accrue from allowing the arm to go free, but when the process of repair in the capsular ligament has been effected there are no wasted muscles and stiff joint to deal with.

Sprains of the elbow, apart from that condition of over-strained muscles commonly called tennis or golf elbow, are commonly troublesome in the later stages owing to the tendency of the biceps to spasm limiting extension. Flexion is rarely interfered with unless the resulting callus of some fracture causes the block. In dealing with sprains of this joint, therefore, the masseuse should gently extend the joint at a very early stage of treatment.

Injuries to the knee-joint are easily occasioned, and the ensuing synovitis is an ailment medical men are constantly called upon to deal with. Massage in the slighter cases, if efficiently administered, gives admirable results, but where the joint is tense preliminary aspiration of the joint may be advisable. At some hospitals in France all full joints are aspirated, and I have found these cases do much better than when the patient has had the leg kept rigid in a back splint and the absorption of fluid left to time. From anatomical reasons the position of greatest comfort for a really full knee is slight flexion, yet time after time one sees a joint tense unto bursting point firmly bound down in full extension.

If the condition is sufficiently acute to necessitate rest the joint should be bandaged to prevent any lateral movement, and a small pillow or cushion placed underneath the knee. As the swelling goes down the supporting cushion can be lowered or removed, and the joint painlessly adapts itself to the extended position.

When the pain is severe anodyne lotions can be applied in the intervals of the massage. Traumatic synovitis due to direct violence is more likely to cause separation or injury of the semilunar cartilage than when the condition arises from a twist or sprain. Sir Arbuthnot Lane experimented some years ago in the dissecting room, and found that heavy blows on the joint caused loosening and splitting of the cartilages.

It is not within the scope of this paper to discuss the pros and cons of operation in these cases of cartilage trouble; but there is another condition met with in the knee closely allied to displacement of the cartilage. It is that in which a hypertrophied fringe or fold of the synovial membrane gets nipped between the articular surfaces. Diagnosis is not always clear between genuine slipped cartilage and this condition of caught-up membrane.

In the cases mentioned by Sir William Bennett there was apparently no difference clinically between membrane and cartilage till operation revealed the true cause, and it was obvious that nothing but operation would have relieved the condition. In cases which I have seen the knee is not kept at nearly so acute an angle as in the true cartilage lesion. In fact, the majority only complain of an inability to brace the leg fully back without a sense of pain and discomfort over the front of the joint, and provided they are not called upon to undertake much physical exercise suffer but little inconvenience. Any attempt, however, to indulge in outdoor sports is followed by synovitis of the joint. It is in these cases that the modern bonesetter scores so freely. Treatment in these simpler forms of internal derangement should be by manipulation, much on the same lines as in replacing a cartilage, followed by massage, and at a later stage by strapping or bandaging the joint in such a way that only flexion and extension is possible.

It may be taken as an axiom that if a joint be injured the muscles in control of that joint will waste. By means of massage this wasting is undoubtedly obviated to a large extent, but even then, in comparison with the uninjured side, a difference in the bulk and tone will usually be detected. This wasting of the muscles in the upper limb will probably be righted, if slight, by ordinary use, but in the case of the lower limbs, which have to carry the weight of the body, further treatment by means of suitable gymnastic exercise is essential.

The knee joint is that most commonly rendered unstable as a result of injury; this is not surprising when we consider the enormous leverage brought to bear on it, and that the principal support of a knee-joint is the muscular structure of the thigh All the muscles in direct control of the knee join in the wasting, and not merely the extensor femoris. Any person having recovered from an acute synovitis of the knee, if attention has not been paid to the inevitable muscle wasting, is liable to get into a vicious circle. The knee joint gets overstrained from want of proper muscular support and swells, with the result that the wasting is accentuated during the abatement of the synovitis. Once more the patient proceeds to get about normally, and there is recrudescence of the trouble until the possibility of some internal trouble of the joint is suspected. Many a man has had his knee joint opened on the supposition that the cartilage was defective when the whole trouble was due to the weak muscles being unable to support the weight of the body on a joint rendered flabby by repeated attacks of synovitis. Every case of recurrent traumatic synovitis is not necessarily due to internal derangement of the knee.

The exercises suitable for this class of weakened limbs must, to commence with, be of the lightest variety, and so arranged that no heavy strain is thrown on the joint. This can best be accomplished by means of one of the pulley and weight machines, as the amount of weight used can be regulated. Swedish and general gymnastics, though highly beneficial in other conditions of weak muscles, throw too much direct strain on joints to be made use of at the commencement where the joint itself is weakened.

In no circumstances should exercises be started till all signs of the acute condition have passed. For the first few days a certain amount of pain may be experienced after exercising in the whole limb, due to the waking up of lethargic muscles; this will pass off in the course of a short time, and may be ignored. Proper attention to the performance of these daily exercises will eventually restore soundness, even in cases of years' standing, where, in order to counteract the joint weakness, reliance has been placed on artificial support.

Most of the ingenious contrivances habitually worn as a support tend to accentuate the atrophy of the controlling muscles, and their use is to be deprecated. Of course, some of the knee trusses are of great value when the condition is one of slipping cartilage, but too often do we find people wearing elastic knee-caps, and even heavy mechanical contrivances, when proper attention to the muscle tone is all that is necessary.

Radiographs should always be obtained in all cases of severe sprains or injuries of joints, as the presence of some fracture will often be seen which might not be detected by ordinary methods of examination. For example, in sprains of the ankle-joint a small crack is often found in the lower end of the fibula which, though unimportant, somewhat prolongs recovery. Fractures of the scaphoid and "Bennett's stave" are often discovered in cases of alleged sprained wrist. Heavy falls on the shoulder sometimes cause an impacted fracture of the head of the humerus which is not infrequently mistaken for severe traumatic synovitis. If a large amount of extravasated blood be observed on the inner surface of the arm running from the axilla to the elbow, this condition should be suspected.

Radiographs should also be obtained in all cases where, for lack or in spite of more active treatment, stiffness of the joint remains behind, in order to eliminate the presence of any morbid condition. If treatment by radiant heat baths and massage fails to effect a cure, manipulation under an anaesthetic should be carried out provided the case is otherwise suitable. Properly performed, with attention to certain broad rules, this method of treatment gives excellent results.

Doubtless many have read in the press impassioned appeals for the admittance of bonesetters into the R.A.M.C. This is due to a belief that the medical profession are ignorant of this line of work. Attacks on the medical profession in the lay papers by advocates of bonesetting have been going on from the time of Mrs. Mapp of Epsom in 1787. The greater part of this recent outcry is undoubtedly biassed, as, for instance, the article in the *English Review*, which implies to anyone not cognizant of the facts that no surgeon of to-day understands or practises these methods. References are made to statements uttered by well-known surgeons to the effect that there is something to be learnt from the handiwork of bonesetters, but no allusion is made to the many surgeons who have written descriptions of these manipulations, and who practise this line of treatment in private as well as in the military hospitals. At the same time it must be admitted that hitherto *brisement forcé* has never been generally popular amongst medical men.

Nowadays, however, there are special departments attached to practically every command, where surgeons not only habitually break down adhesions when necessary, but superintend the massage, gymnastics, and other adjuncts so important to the after-care of ankylosed joints.

# Lectures
ON
# DISEASES OF THE MALE URETHRA.

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## LECTURE V.—TREATMENT (*Continued*).

### THE URETHROSCOPE.

THOUGH a fair percentage of cases can be cured by irrigations and prostatic massage alone, yet a certain number will be found which remain uncured, and which, if left alone, will relapse. These relapsing cases need for their cure an intelligent use of the urethroscope. Some of them will thus be seen to have soft strictures, and these will need for their cure dilatations by means of bougies and the Kollmann's dilators. Others will be found to have infected glands of Littre. These infected glands can be most quickly and easily cured by their destruction through the operating urethroscope.

The position I maintain with regard to the urethroscope is this: You can cure many cases without the urethroscope, but you can only cure all your cases if you are expert in the use of the urethroscope. But quite apart from the question of cure is the immense value of the urethroscope in training the eye in the clinical pathology of urethritis. It is a curious fact that, backward though the study of urethritis has been in England, yet the English urethroscopes are far in advance of any I have seen abroad. In this branch of the subject we have little to learn from foreign practitioners.

For some reason or other, foreign authorities have not taken kindly to the aero-urethroscope. They are content to use some modification of Valentine's or Luys's urethroscope, with which no air is used to distend the canal. In this way they have missed many refinements in diagnosis which are of great importance. In my experience the best urethroscope is that invented by my friend, Mr. Wyndham Powell, after years of patient study, and I cannot too warmly recommend it to your notice. There is not space in these lectures to deal with other instruments, and in what follows I shall assume we are using a Wyndham Powell instrument.

#### *The Posterior Urethroscope.*

I shall not discuss the posterior urethroscope in these lectures. The best posterior urethroscope is the irrigating urethroscope of Goldschmidt and Wassidlo. Such an instrument should be in the hands of all specialists, but its chief value is to teach the clinical pathology of the deep urethra. It is seldom required in routine treatment, as the large majority of cases of posterior urethritis can be cured without its use.

#### *The Wyndham Powell Urethroscope.*

A source of illumination suitable for small electric lamps is required, such as an accumulator or a rheostat working off a transformer. Do not use the direct current from the main, as it is dangerous. The instrument contains an electric lamp attached to a short vulcanite handle. In front of this is placed an adjustable focussing lens, and on top of this comes down a folding hood, which holds an adjustable pierced mirror, resembling the mirror of the ophthalmoscope. The mirror can be adjusted by a screw so as to direct the focussed light straight down the centre

of the urethroscopic tube. The eye looks through the aperture of the mirror and is aided by a little telescope which is inserted at the top of the hood. Attached by an adjustable metal arm to the bottom of the lamp holder is a cone of metal, the top end of which is closed in by a glass window and the bottom end of which is moulded to fit the urethroscopic tubes. Into the side of the cone runs a small tube, to which can be attached the rubber ball which acts as an air bellows. Another cone is supplied, into which can be screwed the various instruments required for operations, such as a probe, a curette, and a knife.

When the instrument is used for inspection the cone is attached direct to the urethroscopic tube. When the instrument is used for operating a rubber chamber, rigid or collapsible at will by means of two screws, is attached by one end to the cone and by the other end to the urethroscope tube. By this ingenious device it is possible when the instrument is in place to collapse the rubber chamber and to bring the probe out of the urethroscope tube into the urethra and to direct it into the mouths and bodies of the infected follicles. Before use the probe is heated and run through a solid stick of silver nitrate. In this way the probe can be run into an infected gland and be made to destroy it completely. This can best be understood by referring to the diagrams.

The practitioner should practise the use of the probe on the palm of his own hand until he thoroughly understands the mechanism of the performance. Some months' practice is needed to obtain a mastery in the use of the silvered probe, but I believe there is no simpler or more satisfactory method of destroying infected follicles. I could publish dozens of cases cured by this means when all else has failed.

The curette and the knife are seldom required. The curette is used for warts and the knife for opening small urethral abscesses.

As regards choice of urethroscope tubes I advise as follows: A No. 24 and 26 Charrière 3 in. tube. A No. 24 and 26 Charrière 4 in. tube, and a No. 18, 22, and 24 5 in. tube. These will be found sufficient for most eventualities. Operations are performed with 3 in. and 4 in. tubes, so that two sets of instruments are required of a length suitable to these tubes.

The great advantage of an aero urethroscope is that the air drives out the walls of the canal away from the urethroscopic tube. Air distension enables you to observe accurately whether any part of the canal is dilating properly or not. This is the most vital fact you want to know. In the second place, it helps you to determine whether the urethral follicles are infected or not; and, more important still, it helps you to operate on and destroy the infected follicles rapidly and effectually. The instrument is not an easy one to master, and I shall assume that you are willing to give time and patience to practise its usage. It will take you at least six months to become any good at urethroscopy, and probably one to two years before you can be considered fitted to give a first-class opinion thereon. Do not be discouraged; persevere and you will find your reward in the added interest you will find in your cases, and in the great improvements in your results. The men who tell you that you do not need the urethroscope are men who have not had the patience to master the instrument. It is the same type of man who says there is no need for the cystoscope in the diagnosis and treatment of diseases of the bladder and kidney. Pay no heed to such false prophets. It stands to reason that if inspection by the eye is possible of any diseased portion of the body, then such inspection must be the best means for exact diagnosis and treatment, and must be mastered by the modern practitioner. It is the elaboration of such instruments of precision that has made necessary the development of specialities. Special instruments mean special doctors.

### How to Use the Wyndham Powell Aero-Urethroscope.

Let the patient pass water and then recline upon the examining couch. Do not irrigate the urethra, as by doing so you spoil the pathological picture. See that the lamp is acting, and that the instrument is in focus. Attach the rubber bellows to the air tube, the tap being turned off, and blow up the bellows to full distension. Place the instrument on the table between the patient's legs, and get him to hold the air bellows.

Select a No. 22 Charrière tube 5 in. long and see that the obturator is working smoothly. Lubricate the tube and pass it gently into the urethra up to the hilt. Slowly withdraw the obturator, attach the urethroscope to the tube, and turn on the air. You should now see the bulbous urethra blown out by the air with the external sphincter lying at the deepest part. Examine this portion of urethra closely, and then gradually withdraw the tube, noting the condition of the penile urethra and the fossa navicularis. Pay particular attention to the roof of the canal. Note particularly the dilatability of the different portions of the canal, and the condition of the follicles.

#### *Normal Appearances.*

The external sphincter or compressor urethrae is seen in action at the extreme back of the bulb, alternately contracting and relaxing under the air pressure, and drawing up the mucous membrane into star-like folds. The bulb appears like a cavern viewed from the open end of the tube, the floor particularly bulging downwards away from the tube. The floor of the bulb is pale pinkish-yellow, with two longitudinal leashes of blood vessels running forward out of the deep urethra. The mouths of the ducts of Cowper's glands can seldom be distinguished. The floor of the bulb bulges downwards, so that this portion of the canal is ovoid in section. In the middle of the bulb the canal is more nearly circular in section, but still very dilatable. The rings of the involuntary circular muscles lying just under the mucous membrane are readily seen, specially under moderate air distension. They must not be mistaken for strictures. Pump in more air, which will flatten out the muscular rings so that they are no longer seen. The wall of the canal then appears perfectly smooth, glistening, and pale yellowish-pink in colour. The mouths of a few follicles may be seen on the roof of the bulb, but often there are none in this position.

The penile urethra is circular in section, and appears as a cylindrical tube much narrower than the bulbous urethra. Rings of muscle can be seen under low distension. Under high distension the wall is smooth, glistening, and a pale yellowish-pink. On the roof a large number of mouths of follicles or glands of Littre can be seen. They are usually arranged in a single row, longitudinally disposed one above the other. In some persons they are disposed in a double row. In a few persons they can be seen on the lateral walls, and even on the floor.

The fossa navicularis is lined by smooth pale yellow mucous membrane, and usually only presents one gland—the lacuna magna—which can be seen opening on the roof about one inch from the meatus. Rarely, large lateral or floor pits are seen. Having familiarized yourselves with the normal appearances of the urethra, you should then proceed to learn the appearances of disease.

#### *The Urethroscopic Appearances of Diseased Urethral States.*

As a general rule it is not wise to use the urethroscope in any given case till the urine is clear. That is to say, in early acute urethritis you wash out the urethra for five to ten days until all discharge is gone and the urine passed is clear. In subacute posterior urethritis with hazy urine, you wash out the deep urethra until the urine is clear, and then use the urethroscope. In chronic cases you can use the urethroscope at any time.

#### A. *Early Acute Cases.*

We will suppose that the patient came to you on the third day of a urethritis, that you irrigated daily for seven to ten days, and that all discharge has ceased and the urine is clear. You want to know if the case is cured. In such a case do not employ too great air distension for fear of driving disease, if still present, back into the deep urethra. You will probably find that the whole canal dilates properly, and that the mucous membrane is pale pink and glistening with mucus. In such a case you have obtained a cure. In other cases you will note that a tiny bead of yellow pus can be seen in the mouth of one or more of the glands of Littr , and that there is a red area round its mouth, and that the body of the gland is bulging into the lumen of the canal. This is the appearance of an infected gland of Littre (or follicle), and if left alone

the gonococci from the gland reinfect the urethra in a few days and set up a relapse of bright yellow discharge. Such an infected follicle must be destroyed (*vide infra*).

B. *Later Subacute Cases.*

We will suppose you are examining a case that has had a posterior urethritis, and that as the result of irrigations and prostatic massage at the end of six to eight weeks from the start you have rendered the urine clear and wish to know the state of the anterior urethra. Here you may find that the whole canal dilates well, and is pale pink, smooth, and glistening, or you may find a number of infected follicles as before. But in a number of such cases you will note that the walls of the bulbous or of the penile urethra do not dilate properly even under strong air distension, but that the walls bulge into the lumen of the canal, and are red, swollen, and oedematous. This condition is what I call a "soft stricture" or a "submucous infiltration." The pathology is that gonococci are lying in the submucous tissues of the canal at this place and are causing hyperplasia of the tissues, the tissue spaces being full of inflammatory fluid and inflammatory cells (pus cells, plasma cells, fibroblasts). Such a condition if untreated will keep up a discharge for a year or two, and eventually will become the site of a tough fibrous tunnel stricture. If treated at once by dilatation with Kollmann's dilators, not only is the urethritis soon cured, but no fibrous stricture can possibly follow.

C. *Early Chronic Cases.*

Suppose that you are examining a patient who has had urethritis for some six months, and that he still has a constant gleet with a tendency to relapse of bright yellow discharge. In such a case you may find on examining the urethra that a portion of the canal does not dilate properly, yet its walls are quite smooth and pale pink in colour. There is no longer any oedema or redness of the wall, yet a fibrous edge has not yet appeared. This is the intermediate type of stricture, and it is the one most liable to be missed by a careless observer. It needs for its treatment and cure dilatation by the Kollmann's dilator.

D. *Late Chronic Cases.*

Suppose that you are examining a patient who has had a gleet for two or three years and who passes threads in a clear urine. In such a case you are likely to find the beginnings of a fibrous stricture. Fibrous or hard strictures can be followed by the urethroscope in their varying stages from their birth to their death at the hands of a Kollmann's dilator. You can learn more about strictures with the urethroscope than by any other method. I teach that there is only one proper way by which to diagnose stricture, and that is by the aero-urethroscope. The old methods of diagnosing the stricture by means of a bougie should be relegated to a scrap-heap. Why trust to the sense of touch when it is possible to employ the sense of sight, especially as it is so easy to mistake spasm for stricture when using a bougie. Just as the cystoscope has relegated the sound to the scrap-heap in the diagnosis of stone in the bladder, so the urethroscope should entirely supersede the use of the bougie in the diagnosis of stricture. The urethroscopic picture of a stricture as presented by the aero-urethroscope is unmistakable, and the veriest tiro cannot fail to detect it. Yet in most of our hospitals the diagnosis of stricture is still made by the bougie, and there can be no doubt that the operation of internal urethrotomy is performed yearly on dozens of cases in these hospitals in which no stricture is present at all, but merely spasm. Another advantage gained in the diagnosis of stricture by using the urethroscope is that you can at once get a fair idea as to the calibre of the stricture, and as to what size of instrument it is likely to take when you start dilatation treatment.

TYPES OF FIBROUS STRICTURE.

The simplest type of stricture is seen as a small crescent or fibrous tissue forming an arc about a quarter the circumference of the canal, and in the centre of which can be seen the open mouth of a follicle. Undoubtedly these arise from long-standing inflammation of a gland of Littre.

The next type is seen as a white fibrous crescent taking in about two-thirds of the circumference of the canal. This is the so-called bridle stricture, and it arises from a small submucous infiltration which involved originally only a part of the circumference of the canal.

The third type of stricture is seen as a complete circle of white fibrous tissue, with a large lumen, represented in longitudinal section as a complete fibrous diaphragm with a large central aperture. This is the commonest type of stricture, and it progresses until only a narrow pin point opening can be seen.

The fourth type of stricture arises from an extensive submucous infiltration which originally involved an inch or more of the length of the urethral cylinder. The face of a dense mass of white fibrous tissue can be seen with a pin-point opening near the centre, and, in addition, there can be felt a thickened cylinder of fibrous tissue along the length of the corpus spongiosum. This type, therefore, can not only be seen, but can be palpated from the outside. I have named it the "tunnel" type of stricture. It is far more rebellious than any other kind, and usually needs urethrotomy before it will yield to dilatation.

RARE URETHROSCOPIC APPEARANCES.

In a few cases, but only in a few, you will find other lesions.

1. *Warts.*

These appear exactly like little septic warts which are so commonly seen under a septic foreskin. They must be curetted away through the operating urethroscope, and the bases touched with silver nitrate fused on to a probe.

2. *Pouches.*

Congenital pouches are occasionally seen on the floor of the bulb. I have several instances in my records. I believe they arise from maldevelopment of the ducts or glands of Cowper. They are of little pathological interest in keeping up a urethritis; but they may give rise to difficulty in the passing of an instrument unless their presence has previously been determined by the use of the urethroscope.

3. *Leucoplakia.*

I have seen typical leucoplakia, white patches of thickened epithelium, in chronic cases which have received prolonged treatment with strong caustics. The urine is usually loaded with threads like the wings of aeroplanes. The condition needs no treatment, and should not be irritated by further strong applications. In very rare cases I have seen it end in primary carcinoma of the urethra, one of the rarest of diseases.

4. *Inflammatory Polypi.*

These are very seldom seen in the anterior urethra, though they are not so uncommon in the deep urethra. They should be curetted and their bases cauterized with pure silver nitrate fused on a probe.

5. *Multiple Millet Seed Bodies.*

In a few cases that have received prolonged treatment an appearance is seen as if the whole canal were dotted over with tiny grey bodies, the size of a millet seed. These are, I believe, new growths of lymphoid tissue beneath the mucous membrane. The best treatment I have found in such cases is to use Kollmann's dilators for a time, then to paint the canal several times with strong silver nitrate (20 grains to the ounce of distilled water), and then to leave alone for some time, when the bodies will disappear.

6. *Angeiomata.*

These are very rarely met with in the male urethra, but may prove very troublesome. I had one patient who developed urethritis, and one day he suddenly noticed that his boots were soaking wet. On examining his clothes he found his pants and socks soaked with blood, which was issuing from the urethra. Examination revealed an angeioma on the floor of the penile urethra, with a tiny septic ulcer at one portion from which the blood was issuing. Under an anaesthetic I was successful in applying an electric cautery to the angeioma, which I destroyed completely, and shortly after I was able to send the patient away completely cured of his urethritis and his angeioma. This is the only occasion on which I have seen an actual ulcer caused by gonorrhoea.

In the vast majority of cases of urethritis ulceration of the urethra never occurs, and you will not be likely ever

to see an ulcer from this cause. Yet the textbooks and some books written by specialists are continually talking of ulcerated patches in the urethra as if they were of common occurrence. If you use gentleness in passing the urethroscopic tube I will vouch for it that you will not see a true ulcer in one case in a thousand.

The same holds true of "patches." I always know that a man has not really studied his urethroscope when he tells me he has seen a patch which he has painted. I do not recognize such a thing as a patch or a "granular patch" in the urethra. I can see a submucous infiltration, or a soft stricture, and perhaps this is what is meant when people describe having seen a patch. But if this is what is meant by a patch, then I can only say that the worst possible treatment for it is to paint it with strong chemicals. These only irritate it and make it worse. Treat such areas by means of dilatation, not by means of paints. I always distrust the "patch painter." There are many about. For instance, a student came under my care who for six months had attended a certain practitioner twice a week, and had had a patch painted through the urethroscope without any relief. When I came to examine the urethra I found that it was not at fault, but that the man had a chronic infection of his prostate. The prostate had never been examined by the patch painter. Two months' massage of the prostate twice a week completely cured the patient without any more urethroscopic treatment.

Summing up, I strongly urge you to lose no time in acquiring a good urethroscope and in using it constantly. Only by constant use can you train your hand and eye and obtain first class results.

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## THE CHARACTERS OF THE ENTEROCOCCUS.

BY

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DURING the present war reference has been made by one or two writers to the enterococcus which is so frequently met with in wounds and other infections. No mention of this organism is to be found in pre-war English textbooks, and its characters are perhaps little known to many who are at present engaged on laboratory work. Reference, however, to French and German medical journals will show that it has been frequently written about, while special mention is made of it in French textbooks of bacteriology. A summary of this literature and the bibliography will be found in a paper in the *Journal of Pathology and Bacteriology*.[1]

While the organism would appear to be a saprophyte capable of assuming virulence under certain conditions, there is some divergence of opinion as to its constant presence in normal stools.

French writers hold that it is a constant inhabitant of the normal intestine, where its seat of election is the small gut. It is said to be specially common in the intestine of infants, where it has been found along with *B. coli* and streptococci as early as the third day after birth. On the other hand, one of the German workers, who examined the stools of 3,530 persons, found enterococci in fifteen cases only, and none of these were in normal health. Six of them were suffering from "enteritis," or were convalescent from typhoid or paratyphoid fever; two, from whom the organism was obtained from the gall bladder, were cases of suspected typhoid; from another case of suspected typhoid the enterococcus was obtained from the urine; in five the same organism was recovered from collections of pus in relation to the pelvic or abdominal viscera, and in one case labelled "sepsis" it was recovered from the blood. In order further to corroborate the French statement that this organism is fairly common in the mouth, he investigated the mouth flora of 321 cases without once finding the enterococcus. He suggests, therefore, that it is not usually found either in the mouth or in the gut of healthy adults.

Whether this be strictly true or not there can be no doubt of its frequent association with morbid processes, more especially in relation to the intestine. It is of interest to note that many of the cases from which it has been isolated have been suffering from, or have had, typhoid or paratyphoid fever.

This is illustrated in a case of puerperal septicaemia of moderate severity which I investigated in 1913, the details of which are published elsewhere.[1] This patient had suffered from enteric fever in India, and had also had what was termed an attack of dysentery some years before. The enterococcus was obtained in pure culture from the interior of the uterus, and recovery followed the administration of a vaccine made from the strain isolated. It may be of some value at the present time to record again the characters of the strain isolated on that occasion.

### *Motility, Staining, and Morphology.*

The organism was non-motile, stained easily with the usual dyes, and was definitely Gram-positive. It occurred as diplococci, or in short chains of two, four, or six pairs of cocci. In films made from the living tissues the cocci were surrounded by an unstained area suggestive of the presence of a capsule. In this respect they closely resembled pneumococci.

In shape the elements were somewhat pleomorphous—a feature which is said to be characteristic of the enterococcus. In films made from a twenty-four-hour-old agar slope the organism appeared mainly in the form of isolated diplococci, the individual elements of which were oval, lanceolate-shaped, or quite round. Capsules were absent. The two elements composing the diplococcus were frequently inclined to one another so as to form an obtuse angle.

In films made from a three-day-old glycerine agar culture pleomorphism was still more marked. Many appeared as elongated ovoids apparently linked together by a fine thread or filament. The outer ends were generally pointed. Others were more uniform in shape, and resembled short diplo-cocco-bacilli. The two elements of the diplococcus frequently varied in size.

Chain formation was more marked in broth than on solid medium, the chains being short, and resembling in this respect *Streptococcus faecalis*.

### *Cultural Characters.*

Broth in twenty-four hours at 37° C. became turbid, and a slight deposit was found at the bottom of the tube. After longer incubation the broth became clear, and a whitish deposit was found to have settled at the bottom. On gently agitating the tube this deposit rose up spiral fashion.

In *peptone water* and in *hydrocele fluid* respectively, much the same appearance was found, but the turbidity was less marked, and even after several days' incubation the deposit was not so copious.

In *peptone water*, to which 1 per cent. *glucose* had been added the turbidity and the deposit were both very marked.

*Neutral red broth* showed no change, apart from a deposit, after three days' incubation.

*Agar Slope.*—In twenty-four hours minute, discrete colonies, very similar to colonies of streptococci, were seen. These were translucent and showed a greyish-blue sheen. In shape they were round, with sharply-defined edges, and in the centre of each a pin-point speck more opaque than the rest of the colony. With a low power the colony presented a somewhat granular appearance. In older cultures the colonies became rather more opaque. The water of condensation was turbid.

On *glycerine agar* the growth was more abundant, so that, instead of discrete colonies, there was a thin bluish-grey film along the needle track.

On *blood agar* the growth was still more copious, mainly confluent, but where isolated colonies were present these were larger and more opaque than on plain agar. No haemolysis was observed.

According to Besson, growth in liquid serum is very feeble.

On *gelatine slopes* incubated at 18° C. very minute, clear, transparent, discrete, round colonies were seen within thirty-six hours.

In *gelatine stab* culture at the same temperature, small discrete whitish colonies were found along the needle track within forty-eight hours.

No liquefaction was observed even after eight weeks' incubation.

*Indol* was not produced.

*Milk* became acid, but no clot was formed except in one tube, and that after eight days' incubation.

According to Besson, growth in milk is poor and coagulation is not a constant phenomenon. *Streptococcus faecalis*, on the other hand, generally produces clot in milk.

*Sugar Reactions.*—Acid production was found in glucose, lactose, maltose, saccharose, raffinose, glycerol, mannite, and inosite litmus peptone water. In dextrin there was only weak acid production, to judge from the feeble red colour resulting after incubation. In dulcite litmus peptone water the colour was discharged, but no reddening occurred, while arabinose, inulin, and adonite remained unchanged. After the lapse of some weeks the sugar reactions were repeated with the same result, except that in the raffinose tubes the colour was simply discharged after three days' incubation without the red colour appearing. The acid-change, however, was found to be rather slow in appearing, not only in the raffinose tube but also in saccharose, inosite, and dextrin. No gas was formed.

Judging from the sugar reactions, the organism corresponds most closely with *Streptococcus faecalis*, except as regards raffinose, which is unaffected by *Streptococcus faecalis* as a rule. It grew easily on most media which had a somewhat alkaline reaction. On markedly acid medium I was unable to obtain a growth. It grew well both aërobically and anaërobically, but rather better in the presence of air.

According to Besson, some strains can only be isolated by growing the material anaërobically in the first instance, but once growth is established further subculture can be carried out in the presence of air. It is possible that failure to obtain a growth of the organism may be due to the fact that the observer omits to put up anaërobic as well as aërobic cultures of the material under investigation. This is a point of some importance in looking for the enterococcus.

As regards temperature, it was found to grow quite well as low as 18° C., and was found alive after eight weeks' incubation at this temperature. Growth at a low temperature and prolonged vitality are both considered by French writers to be characteristic of the enterococcus. Indeed, it is said to be capable of remaining alive for years in anaërobic fluid culture.

Agglutination reactions were not thoroughly investigated, but, while the patient's blood and that of inoculated animals caused definite agglutination in certain dilutions, there was an indication that normal blood serum was capable of agglutinating the enterococcus when the former was used in the undiluted condition.

*Pathogenicity.*

The organism was pathogenic to rabbits and mice, since all but one died about the fourteenth or sixteenth day, and from some of them the organism was recovered from the blood or other fluid.

Opinion appears to be divided on the question of pathogenicity, as very different results have been got by various men. The explanation probably is that the virulence varies in different strains, and the increased virulence of some may be due to a symbiosis with other more pathogenic agents such as *B. typhosus* or *B. paratyphosus*. The virulence probably becomes diminished after repeated subculture.

Several points about the enterococcus still remain to be cleared up. This ought not to be difficult in view of the frequency with which the organism is being found amongst the wounded. The organism is probably at most but a variant of the *Streptococcus faecalis* group.

REFERENCE.

[1] *Journal of Pathology and Bacteriology*, 1914, vol. xviii, p. 469.

## DELAYED TETANUS IN CONNEXION WITH INJURIES TO BONE NOT PRESENTING OBVIOUS SIGNS OF SEPSIS.

BY

CAPTAIN M. FOSTER, M.D., F.R.C.P., R.A.M.C.(T.).

BETWEEN November 22nd, 1916, and January 8th, 1917, only three cases of tetanus occurred amongst the troops in the six and a half counties which comprise the administrative area of the Bedford district. In all these cases the incubation period was prolonged, all three had sustained gunshot wounds with fracture, and so far as could be ascertained a primary prophylactic dose of serum had been given in every instance.

CASE I.

Pte. A., Royal Sussex Regiment. Gunshot wound with fracture of right humerus on June 30th, 1916. Discharged from 1st Eastern Hospital, Cambridge, to convalescent home on October 6th, with good union and only a small sinus. This sinus subsequently closed. On November 12th he fell down in the street, and re-fractured the humerus. On November 20th he developed bronchopneumonia. He was readmitted to the Cambridge Hospital on November 21st. On November 22nd twitchings of the limbs were first noticed, followed by trismus. With intrathecal and intramuscular injections of antitetanic serum he completely recovered. A primary injection of antitetanic serum had apparently been given in France, but no subsequent injection in this country. In this case the period of incubation was 146 days.

CASE II.

Pte. B., Bedfordshire Regiment, sustained a gunshot wound with fracture of the left humerus on September 15th, 1916. While on leave at his own home from Bradford War Hospital on December 14th he fell on his arm, which became very painful. He was admitted to the 1st Eastern Hospital, Cambridge, on December 15th. There was then a good bony union, with a small sinus on the inner side of the arm with serous discharge. On December 30th he complained of twitchings and trismus was noticed. With intrathecal and intramuscular injections of antitetanic serum he completely recovered. Subsequent exploration revealed no sequestrum. The period of incubation was 106 days.

CASE III.

Pte. C., Canadians. Gunshot wound with fracture of right femur on October 8th, 1916. On admission to the Northamptonshire War Hospital, Duston, there was about three-quarters of an inch of shortening, with much callus about the seat of fracture. There was a small granulating wound over the great trochanter; no sinus. This wound had healed on December 14th. On January 3rd spasms began in the injured limb, and on January 6th these became general. With intrathecal and intramuscular injections of serum he completely recovered. Shortening of the injured limb increased, and signs of fluctuation appeared; a considerable quantity of pus was evacuated. One primary injection of serum had been given in France, but none subsequently, owing to the absence of any sign of sepsis. The period of incubation in this case was 86 days.

A survey of these cases illustrates the fact that tetanus can lie dormant for a long time in a wound not obviously septic. In two of these cases the direct injury of a fall would appear to have lighted up a quiescent focus. The injury, moreover, occurred at a time when the immunity conferred by the primary injection had presumably worn off. From a practical point of view, the conclusion to be drawn is, that in injuries of bone the absence of obvious sepsis in the wound affords no surety against the development of tetanus. Regarded in its bearing on the necessity for continued prophylactic injections, this fact points to equal consideration being given to the nature of the injury as to the degree of sepsis present in the wound. The aim of this communication is that repeated prophylactic injections should be given in all cases of gunshot wounds with fracture, irrespective of the amount of suppuration present in the wound.

## SMALL-POX VACCINATION BY PUNCTURE.

BY

CAPTAIN H. W. HILL, M.D., D.P.H.,

DIRECTOR, INSTITUTE OF PUBLIC HEALTH, LONDON, CANADA.

YOUR issue of November 4th, 1916, p. 620, carries an account of a method of aseptic vaccination which is good, but we are using a method here in Military District No. 1, Canada, which is still better. It was introduced amongst the civilian population first in 1915,[1] and subsequently became the official military procedure in this district. The method is as follows:

1. The sleeve is rolled up.
2. Orderly 1 washes the arm with soap and water.
3. Orderly 2 washes the arm with rectified spirits.
4. Orderly 3 washes the arm with ether.
5. Orderly 4 breaks the capillary tube of glycerinized vaccine and sets the rubber bulb or other method of expelling contents, handing it to Orderly 5.
6. Orderly 5 expels the vaccine at three (or four) points on the arm, making a triangle (or square) having not less than 2 in. between the points.
7. Orderly 6 sterilizes an ordinary sewing needle and hands it to the medical officer.
8. The medical officer punctures the arm through the drops of vaccine. Six tiny punctures, drawing no blood, are made through each drop, each set of six occupying a space of not more than ¼ in. square. The needle is held almost parallel with the surface. Not over one-thousandth of an inch enters the epithelial layer. A peculiar little "snick" is felt as the needle point goes in.
9. Orderly 7 wipes off the vaccine.
10. The sleeve is pulled down.

*Notes.*

(*a*) The total time from pulling up the sleeve to pulling it down again need not exceed one minute.

(*b*) After the orderlies have had a little practice three men per minute can be vaccinated without haste or carelessness.

(*c*) No after-treatment whatever is required; none should be used; the only direction to the men is *leave it alone*.

The results are:

I. In those not previously successfully vaccinated (and who have not had small-pox) nothing is found for several

days; then develops a typical vaccinal lesion, consisting of one, two, three, or four firm pustules corresponding with the areas punctured. If *left alone*, without bandage or shield, etc., these remain firm and whole; then dry down into hard "buttons," which finally detach themselves, leaving a clean healed base, constituting a typical vaccine scar. If bandages, shields, etc., are used, the moisture from the perspiration, etc., thus retained, macerates the otherwise firm wall of the pustule, which then breaks, creating an ulcer open to infection.

II. In those who have been previously successfully vaccinated (or who have had small-pox), a raised red papule develops in a few hours; itches a little, sometimes develops a number of tiny vesicles over its surface, then dies down and disappears. This is the anaphylactic or accelerated reaction, indicating that immunity exists, sufficient to prevent typical vaccinal lesions.

III. Occasionally a mild reaction of this kind, instead of disappearing, develops into a typical vaccinal lesion, the anaphylactic papules developing into ordinary vaccine pustules instead of receding and drying up. These pustules then run the ordinary course described under II. Evidently here the immunity from the previous vaccination, while sufficient to give anaphylaxis, was not complete enough for protection.

IV. Very occasionally no reaction of any kind follows the puncture. Only in such cases need revaccination be done. The probable explanation in the few cases observed was improper technique or old vaccine.

*Notes.*

(*a*) Certain rare cases showed the anaphylactic reaction (II) although, according to the history given, they never had been successfully vaccinated and never had had small-pox. They showed history of "chicken-pox," however. We investigated two of these cases, communicating with the mother of each and securing from her a detailed account of the alleged attack of "chicken-pox." In one case it was quite evident from the mother's description that the attack was really small-pox; in the other, it was extremely probable that it was small-pox.

(*b*) The only "bad arms" out of many hundreds done that have come to my attention were constituted by slight inflammations about the bases of ulcers, due to prematurely knocking off the dried "buttons" after the vaccination process was quite complete, the buttons having become somewhat loosened but not ready for removal. It must be added, however, that some arms which had been bandaged despite instructions to the contrary flared up more than was necessary, and in a few instances the pustules opened.

For civilian practitioners, not able to employ eight or nine assistants to do the washing, etc., the technique, nevertheless, is so simple that no one vaccination operation need take over five minutes. Its great advantages in civil life are:

(*c*) Not even adolescent girls object to the punctures; there is no fainting, etc.

(*d*) There is no waiting, after the vaccination is done, for the vaccine to dry. The instant the puncturing is finished the surplus vaccine is wiped off and the sleeve pulled down.

(*e*) No bad arms, and no loss of time due to bad arms.

(*f*) In all open methods of vaccination (scraping, scarifying, cross-hatching, etc.) one obvious source of "bad arms" is infection of the open wound, during and after the removal of the epidermis, from the mouth spray of the vaccinator, his assistants, and the patients themselves, especially if there be a number of the latter, crowding the office and all talking at once, as often happens. In the puncture method no epidermis is removed; moreover, the process is so rapid, and the exposure of the arm so short, that this really serious source of infection in the older methods is almost completely eliminated.

REFERENCE.
1 *Canadian Medi al Journal*, March, 1916.

THE twenty-fifth meeting of the Italian Congress of Surgery, which is to be held this year at Bologna on March 4th, 5th, and 6th, under the presidency of Professor Durante, will practically be given up to war subjects. The programme consists of communications on wounds of bones and joints; of vessels, nerves, and spinal marrow; of the head; of the chest, and of the abdomen.

## THE TREATMENT OF MALARIA AND MALARIAL COMA BY INTRAVENOUS INJECTION OF QUININE URETHANE.

BY

LIEUT. RICHET AND WALTER B. GRIFFIN, F.R.C.S.,

SOUTH AFRICAN AMBULANCE, SOUTH OF FRANCE.

THE cases of malaria that reached this hospital from Salonica were of a severe type; in all anaemia, loss of weight, and exhaustion were marked; there were rigors in which the temperature reached 107.8°. Most of the men had received numerous intramuscular injections of quinine, some as many as ten or twelve, and all had been treated with quinine by the mouth. In the severe cases quinine by the mouth and intramuscularly had little effect in controlling the fever or the recurrence of rigors.

The type of case in which the patient passed into a state of coma in twenty-four hours was new to most of us. The men were usually markedly anaemic and wasted, but the temperature rarely exceeded 102°. Quite suddenly the patient would complain that he had difficulty in swallowing, rapidly followed by inability to speak, loss of power in the limbs, coma, and incontinence of urine and faeces. The pupils were dilated, reacting sluggishly to light, pulse feeble and quick, and respiration resembled the Cheyne Stokes characteristic. The spleen was enlarged and tender, knee-jerks diminished, Babinski's sign was absent, and there was no ankle clonus. Examination of the blood showed the presence of numerous gametes and schizontes.

These symptoms all came on within twenty-four hours, and it was for this type of case that intravenous injection of quinine urethane was first tried.

The injection was made with a fine needle mounted on an ordinary serum syringe of 15 c.cm. capacity, and the solution was made up as follows:

| | |
|---|---|
| Chlorhydrate of quinine ... ... | 0.40 c.cm. |
| Urethane ... ... ... ... | 0.20 c.cm. |
| Distilled water ... ... ... ... | 1 c.cm. |

To this solution in the syringe was added 14 c.cm. of physiological serum well warmed. The skin was sterilized with tincture of iodine and alcohol and a bandage applied above the elbow to render the veins more prominent. When the needle enters the vein blood will flow back into the syringe, and this sign will prevent the solution being injected into the tissues. Remove the bandage and inject the solution very slowly; conscious patients noticed a bitter taste in the mouth, buzzing in the ears, and slight giddiness within a minute.

The results in cases of coma were remarkable. In five hours the patient became more conscious, and in periods varying from twelve to twenty-four hours he had recovered completely and all symptoms had disappeared.

For some cases one injection was sufficient, and for weeks after there was no further rise of temperature; other cases were given a second injection within twelve hours if the return to consciousness appeared slow.

In no case had the injection any ill effect; only one patient in a series of seventy cases had slight thrombosis of a vein for a few days. Within twelve hours of the injection Lieutenant Richet found evidence of disintegration in the gametes and schizontes, and it was difficult to find any after forty-eight hours.

Two cases of coma only proved fatal, both complicated by dysentery. Each case had two attacks of coma, recovering from the first after intravenous treatment, but relapsing three days later into a second, from which no effort could restore them. Intravenous injections of serum and adrenalin, oxygen by the mouth and subcutaneously, proved of no avail. All cases had been treated with quinine by the mouth and intramuscularly over long periods at Salonica, and we continued to give them fifteen grains daily by the mouth after intravenous injections. An attempt was made to treat all cases of malaria with continued high temperature and constant rigors with intravenous injections of quinine urethane, and the results were more than satisfactory. Practically every case yielded to this treatment, and the rapid improvement in the physical condition of the men was most marked.

Sometimes it was necessary to give two or three injections before the temperature remained normal and the gametes disappeared from the blood, and every endeavour was made to give the injection six hours before the rigor

was expected, according to the type of malaria from which the patient suffered. In Salonica as much as 18 grains of quinine were injected at one dose, but we never found it necessary to give more than 6 to 10 grains in one injection.

Several cases of pleurisy with effusion, but without any fever, occurred in malarial patients, and the fluid rapidly absorbed after intravenous injections. For the anaemia arsenic was given by the mouth or sodium cacodylate injected hypodermically.

Many men arrived at the hospital with the chronic form of malaria which had well-marked symptoms. Chronic headache, often diarrhoea and sickness, anaemia, lassitude, with an evening rise of temperature to 100°, occurred in nearly all these patients, and the symptoms rapidly yielded to intravenous treatment.

The conclusion arrived at was, that intravenous injection of quinine urethane was the only treatment of malarial coma and a valuable remedy for persistent fever and chronic forms of malaria; it was also painless.

Intramuscular injection of quinine was painful, and often cases arrived with indurated lumps in the buttocks from the effect of injection which later broke down into abscesses.

We are much indebted to Colonel Casalis, R.A.M.C., for permission to publish these notes.

# Memoranda:

## MEDICAL, SURGICAL, OBSTETRICAL.

### THE PERSISTENCY OF VENEREAL DISEASE.

THE persistency of gonorrhoea and its complications are not a little neglected by the great men of the profession. A German professor declared some years ago that the disease was "never cured." This statement, although a great exaggeration, is corroborated to an unfortunately wide extent. The histories of the following cases that have been through my hands in the last few years support the dictum of the enemy professor:

A man of 30 came with a very copious gonorrhoea. He was a highly respected tradesman. He declared that ten years ago, long before he was married, he had become infected. After coitus with his wife the "running" had relapsed, although he had seen nothing for some years. There was no reason of any kind to doubt this man's bona fides.

A man of 35 summoned me to attend him for an attack of rheumatism. I soon found that it was gonorrhoea; his knees and ankles were severely affected, and he was an invalid for over two months. This was due to a relapse of the disease, as he suffered from a slight discharge more than seven years after the original attack. He was a perfectly straightforward man, and endeavours to shake his statement always failed.

An officer returned from France, where he had been isolated from all female society for fifteen months. He slept with his wife, and next day had some discomfort. In the evening there occurred a copious purulent discharge, and next morning he appeared in my consulting room. I found a few undoubted gonococci in the pyorrhoea. This was ten years from the original infection, and he believed himself to have been free from all symptoms for many years.

The last is a striking case at present under treatment. An officer, aged 32, called me in to relieve him from some painful swellings of both ankles. He was a very stout man of rather alcoholic tendencies. Gout was confidently diagnosed, but after two days there was little improvement. Talking to him on the third day, he said that nine years and two months ago he had a bad attack of gonorrhoea, followed immediately by arthritis and iritis. Every symptom entirely left him after a few weeks. Four years ago he had a very mild iritis and penile discharge for two days, and since then no symptom of any kind. There was now a drop of pus which showed quantities of gonococci. This discharge has been visible in the form of a drop about once a week since. He has now been ill for two months, but has greatly improved on the Phylacogen of Parke Davis. There has been a monocular iritis, with a mild hypopyon.

A very rare case of syphilis has also come into my hands:

A child was born to a very robust-looking couple. In the third week typical condylomata developed on its buttocks. The diagnosis was corroborated by two other doctors. Vigorous treatment with grey powder soon cured this and greatly improved the baby's condition. The Wassermann reaction was very well marked in the father. Syphilis was contracted by the father *nineteen* years previously, well treated, and apparently absolutely cured.

Such a history is entirely outside my experience, and, indeed, the universal experience as evidenced by the text-books in general. Dr. Graham Little recently published in the *Practitioner* a paper on gonorrhoeal rheumatism, in which were enumerated a large selection of cases. He had only been able to find in the literature one which had occurred many years after the original attack. The general practitioner is non-communicative, for I feel sure that relapses and arthritis are not very uncommon phenomena.

East Sheen. VAUGHAN PENDRED.

### SCIATIC HERNIA.

THE patient whose case is here related was sent to me by Mr. George Cole of this city. It seems to me to be worth putting on record because of the unusual site of the hernia.

The patient was a male child, 10 weeks old, very poorly nourished, although the mother was feeding it from the breast. She was 33 years of age, and this child was her eighth. A swelling the size of a large nut was found on the left side near to the sciatic notch. I was told that it disappeared entirely at times. The swelling was easily pressed back into the pelvis, gurgling being very noticeable. The case was obviously one of hernia which contained bowel.

I have referred to what literature I possess on the subject of congenital hernia with the following result, namely: Mr. T. Holmes recorded a case of vaginal hernia in his *Surgical Diseases of Children*; Mr. Edmund Owen, one of lumbar hernia; Mr. J. Hutchinson, jun., four cases of lumbar hernia; Dr. W. T. Wilkins, of Kansas, a very interesting case of lumbar hernia the result of injury to the mother before the birth of the child. With the exception of Mr. Holmes's case, all are to be found fully described in Keating's *Encyclopaedia*.

Nottingham. LEWIS W. MARSHALL.

### HOT SAND AS A PREPARATION FOR MASSAGE AND MANIPULATION.

IN his excellent article on "Contractures and allied conditions" in the BRITISH MEDICAL JOURNAL of January 27th Dr. George Cooper makes the following remarks:

Hot sand has been recommended as a useful method of imparting heat to the tissues. It is, however, rather painful, and the skin is found to have been rendered much too tender for subsequent massage. It has no advantages over other methods, and is but seldom employed.

Dr. Cooper's experience is quite contrary to mine, and the explanation is easy. He has used the sand too hot. If he will try it again, applying it at a comfortable temperature, as I always do, he will find it as valuable as I have. I should be sorry to see the method discredited, knowing how good it is, and discredited through an error in the mode of application; for it has this great advantage over other methods, that almost every patient can readily avail himself of it where more elaborate means of heat cannot be obtained. At the present moment it is being employed by a rheumatic patient of mine with the greatest benefit in a place where electric light does not exist.

Exeter. W. GORDON.

THE shortage of rubber in Germany is responsible for severe restrictions on the sale of babies' comforters. Parents can be sure of obtaining them only on the presentation of a birth certificate, and they are granted only to children less than a year old. Not more than two comforters can be allotted to a baby on first application, and before a comforter can be replaced the old one must be returned to be repaired. No restriction is, however, put on the sale of comforters made of substitutes for rubber.

WE learn from the *New York Medical Journal* that the deans of ninety-five American medical schools met recently at Washington on the invitation of the Secretary of State for War to discuss plans for co-operation with the Council of National Defence, and adopted a resolution to the effect that a system of universal military training would be of great benefit to the health, development, and proficiency of the youth of the United States. A petition was sent to the Secretaries for War and the Navy asking that each medical school should be supplied with an instructor in military sanitation and medicine.

# Reports
ON
## MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

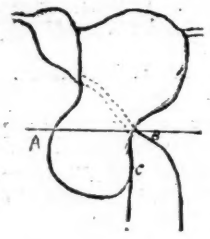
### COVENTRY AND WARWICKSHIRE HOSPITAL.

#### UTERUS BICORNIS.

(Under the care of Mr. HARMAN BROWN; reported by J. H. DOVE, M.B., Ch.B., Senior House-Surgeon.)

A GIRL, aged 19, presented herself at the out patient department of the Coventry and Warwickshire Hospital complaining of diffuse abdominal pain which came on with increasing severity at each period. A large tense swelling could be defined lying in the pelvis, rather to the left of the middle line, and hardly to be dissociated from the uterus; no os could be discovered. Mr. F. L. Harman Brown operated; the median abdominal incision exposed a dark brown mass in the pelvis, almost as large as a child's head. On the right of the mass, and fused to it, was a smaller swelling, resembling a large Fallopian tube, which proved, however, to be a small independent uterus. The larger mass was opened; it contained a great quantity of dark-brown viscid material, retained menses, and was found to terminate as a blind sac deep in the pelvis, being, in fact, a separate uterus with a congenital stenosed vagina, and, as the uterus functioned at the periods, a haematometra had developed.

The smaller uterus was functioning, but from its abnormal appearance and situation it was decided to be useless. Its cavity, when exposed, was seen to be continuous with a long, narrow cervical canal which passed behind the larger swelling, opening into a normal vagina. From the accompanying diagram it seems clear that there was a double uterus and double vagina—the condition known as uterus bicornis.




Both horns of the uterus were removed at the level indicated by the line AB, and the two vaginae were closed and covered over with peritoneum. The imperforate vagina was thus converted into a completely closed sac. The question was raised whether an opening should be made at the point C, so as to drain the closed through the open vagina; but, as the corresponding uterine horn had been removed, it seemed improbable that the closed vagina would fill again. It was therefore left intact, but an opening will be made should any trouble develop. At the end of thirty-eight days the patient, after an uneventful recovery, left the hospital in good health.

Mr. Harman Brown has kindly consented to the publication of this case.

# Reports of Societies.

### PNEUMONIA WITH HYPERPYREXIA AND HEART-BLOCK.

AT a meeting of the Section for the Study of Diseases in Children of the Royal Society of Medicine on January 26th, when Dr. ROBERT HUTCHISON was in the chair, Dr. J. PORTER PARKINSON related the case of a boy aged 14 years, admitted to the hospital on the fifth day of his illness with pneumonic consolidation of the lower lobe of the right lung. The temperature was 104° F., but rose a few hours later to 110° F.; it was taken in the rectum with two other thermometers, in both of which the mercury rose to the highest point for which they were calibrated, 110° F. The patient's general condition remained good, and he was neither comatose nor delirious. He was treated at once with towels wrung out in iced water and applied to the chest and abdomen. Some hours later the temperature rose to 109.6°, and was lowered in the same way. After remaining at about 105° F. for four more days it fell by crisis. During the fever the pulse-rate varied between 100 and 120 and after the crisis fell to 70. Two days later it fell to 44, and it was demonstrated that a condition of 2 to 1 heart-block was present. After two days it rose to between 50 and 60, and became irregular, showing that the conductivity of the heart muscle had improved, and a week later it had become regular and of normal rate. The boy made a complete recovery. The case was interesting owing to the presence of two rare complications of lobar pneumonia—hyperpyrexia and heart block.

# Reviews.

### "THE PANEL DOCTOR."

THE little book on *The Panel Doctor*[1] by Dr. TIBBETTS is readable and instructive. Those medical practitioners engaged in panel work will learn something to their advantage, and those who have nothing to do with this kind of work will also gain by its perusal; they will learn how one large section of our community works, and besides they will find much to their own profit in the chapters that deal with certification, a matter of great and growing importance. Dr. Tibbetts writes with no air of apology. He states that:

> The National Insurance Act of 1911 embodied the most serious and comprehensive effort on the part of the British and probably of any other Government to minimize and remedy the damage from ill health and injuries among the working classes.

The Act, he considers, combined an attempt to alleviate evils that exist, and to prevent greater by redressing the lesser. Throughout he makes it clear that he at least views the work in which he is engaged as one of real national importance.

The book begins with a statement of the methods of working of the Act, the relation of the doctor to members of societies and to deposit contributors, the difficulties that arise with each class of insured person, and the manner in which changes of relation between doctor and patient may be effected. Then come sections on certificates and incapacity for work. Dealing with law and ethics, the medical curriculum and literature of student life is, he thinks, "perhaps too dogmatic, and the first year's experience of the newly qualified of too limited a range for the fullest cultivation of a judicial mind." He suggests that "if students and junior practitioners spent some of their leisure hours in the law courts, especially when compensation cases are being tried, they would acquire familiarity with the grounds on which legal decisions are based, and learn to recognize and eliminate pre-judgement and bias."

The author holds that the greatest appeal of the Act to the general populace was its manner of dealing with tuberculosis and maternity. His statement of the methods of dealing with tuberculous patients is full, and he has no doubt that with all its faults advantages have accrued to the community through the administration. He writes that "there is reason to believe that the public generally, and some practitioners, overlook the fact that sanatorium benefit is not restricted to consumption or lung tubercle, but is due to insured persons suffering from all varieties of tuberculosis, including caries, joints, kidneys, and other organs, the Insurance Committee being equally responsible for their welfare."

That there are difficulties Dr. Tibbetts admits, and for some of these he suggests remedies. The anomalous position of the doctor with regard to the drug bill is one of these; the chemist has been freed from liability, it now rests wholly with the doctor, whereas at least it should be shared by the authorities. Another he finds in the handicap to the keen man who wishes to secure special investigations of clinical material for the benefit of his patient, owing to the fact that "the cost of posting pathological specimens seems to belong to the practitioner, as part of his contribution towards the diagnosis"! A defect of the maternity provision lies in the unequal treatment produced by payment by "results."

Whether a fee is due or not will be decided by the issue: a live birth—fee positive, a stillbirth—fee negative. This

[1] *The Panel Doctor: His Duties and Perplexities.* By T. M. Tibbetts, M.D.Lond., M.R.C.S., L.R.C.P., D.P.H. Birmingham: Cornish Bros., Ltd. 1916. (Cr. 8vo, pp. 57. 1s. 6d. net.)

weakness of the law needs amendment. The doctor, if legally bound to attend, should have his fee legally guaranteed.

The position of the panel doctor able and willing to provide "professional attendance beyond that performed by general practitioners of ordinary capacity, training, and experience" is carefully stated. Dr. Tibbetts suggests as a safeguard, in case of doubt, that it would be well to obtain from the patient a written acknowledgement that he has been duly informed and consents to the proposed charge for the extra service.

On the subject of "remuneration" the author writes:

> What on first appearance was the simplest of the many problems arising from the working of the Act—namely, the methods of remuneration of the doctors—has on application proved to be, without doubt, the most involved. The nine shillings basis, seven for attendance and two for drugs, subject to the contingent interest in a contained floating sixpence, made possible, by the simplest calculations, a definite estimate of his annual income, but for many reasons, some foreseen, others unforeseen, this comforting mirage soon vanished.

Six causes of this defect are enumerated; chief of these is held to be the unwarranted application of patients for the services of doctors when they are not entitled to medical benefit. In many cases this is not the fault of the patient, but of the system. The author suggests that if a provisional medical card were issuable by the agent with the first stamped card and taken to the doctor for treatment until the permanent one arrived the difficulty would in the main be met.

The book includes statements of the work and personality of the many committees which have been constituted under the Act.

## HUMAN TEMPERAMENTS.

DR. MERCIER has written a book on *Human Temperaments*,[2] which probably many of our readers have already seen. Those who have not should presently lay out the small sum demanded, for, like most of the author's writing, it is wisdom salted by wit. It is the sort of book which makes the elderly think of the French proverb as to the ignorance of youth and the powerlessness of age, for if the young man who has just taken a brilliant degree could really assimilate its wisdom he would be on the high road of a brilliant career. The only quarrel we have with Dr. Mercier is as to his definition of "temperament." He defines it as a man's "mental constitution, the order of mental architecture to which his mind conforms, the way in which his mind is put together, the absolute and relative magnitude of its ingredients, and the general composition of its structure." He contrasts it with what the mediaeval physicians, who relied more on such generalities than the modern, termed the "corporature," which is the bodily constitution of the man—his physique or build. We suggest that this definition is too narrow, and that the elder physicians associated a type of body with a type of mind, making the definition given in the *Concise Oxford Dictionary* nearer the mark: "Individual character of one's physical organization permanently affecting the manner of acting, feeling, and thinking."

Of the dozen essays in the book the most amusing is that on the faddist, of whom it is said that "if he cannot attain distinction, he will at any cost attain singularity, and this may lead to notoriety." The essay on the suspicious temperament is very agreeable to read, but leaves a feeling of incompleteness; it deals with only one species. The most informing essay is that on cleverness and capability; it puts into clear perspective two types of character or temperament often confused, though most of us have vaguely felt the difference. The most original essays seem to us to be those on the artistic temperament and the temperament of the artist. They are of real value, because they draw a distinction, so far as we know not as clearly drawn before, which will greatly help to the understanding of many things in literature and art.

## FOOD AND FEEDING.

THE first edition of Dr. HUTCHISON'S well-known book on *Food and the Principles of Dietetics*[3] came out in 1900. The fourth edition, now before us, is a model of what such books should be. It is well arranged, clearly written, and full of useful information, facts, figures, and tables. Dr. Hutchison writes with an impartial pen, and on vexed questions—like that of the use of alcohol in health and sickness—gives a very fair summary of what may be said on each side of the matter, and a very good presentation of the facts upon which the widely divergent views of the teetotalers and others are based. There are excellent chapters on such subjects as cooking, digestion, the principles of feeding, certain dietetic cures, and artificial foods and feeding, at the end of the volume, which concludes with a satisfactory index. The book should continue to enjoy its present wide popularity. It is suitable for readers of many classes—for the intelligent layman, for the housewife whose soul is in the kitchen, but especially for medical practitioners and students of medicine.

An excellent account of how to feed people and families both scientifically and well is contained in Dr. ROSE'S *Feeding the Family*.[4] The book begins with a general account of foods and their individual qualities. Then follow chapters on the special dietaries suitable for different individuals at different ages, in health and sickness. Three chapters are given to the subject of feeding the family. There are nine appendixes, containing all sorts of information useful to the scientific cook and housewife. Illustrations are inserted to put various practical points clearly before the reader, and there is a good index. Throughout the text many of the foods mentioned are measured in "cupfuls," but nowhere, so far as we can see, is the exact size or capacity of the cup mentioned. The book is well designed; it has been written for use in American households, and one may imagine that non-American cooks might be at a loss if asked to provide dishes composed of "popovers," "penouche," "pecans," or "samp baked with cheese" for the table.

MR. JAMES LONG'S book on *Food and Fitness*[5] is a temperate plea for a diet mainly vegetable in origin, written by a layman who has practised and, he believes, profited by what he preaches. He holds that in middle life at any rate animal food should be partially, or even wholly, given up, milk and cheese being retained. His authorities are for the most part Professor Chittenden, Dr. Benner of Zurich, and Dr. Hindhede, all of them well known for their advocacy of diets relatively poor in protein and rich in vegetable food. Mr. Long writes in a practical style, and his book may be commended as a reasonable presentation of one point of view.

## SANITATION IN WAR.

THE first edition of *Sanitation in War*,[6] by Major P. S. LELEAN, C.B., F.R.C.S., R.A.M.C., assistant professor of hygiene, Royal Army Medical College, founded upon a course of lectures which we were permitted to report in our columns at the time, was published in May, 1915; it was reprinted in July, 1915; the second edition has now appeared. The author, in a preface dated from "somewhere in Egypt," says that in spite of the small facilities for literary work and consultation of references existing in the Sinai desert, he has been able to revise the whole text, and add some new material, especially to the chapter on conservancy in the field, into which descriptions of various methods evolved during the present war have been introduced. A new chapter on the part played by insects in the war has been contributed by Major E. E. AUSTEN of the British Museum. It describes briefly mosquitos, house flies, and the apterous ecto-parasites (fleas, bugs, lice), with the completeness and accuracy that might be expected from the author. These descriptions are followed by practical notes on protective measures. The whole book is compactly written, compactly bound, and adequately illustrated with really useful diagrams and drawings. There can be no better companion for the military medical officer.

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[2] *Human Temperaments: Studies in Character.* By Chas. Mercier, M.D., F.R.C.P. London: The Scientific Press, Limited. 1916. (Post 8vo, pp. 91. 1s. net.)

[3] *Food and the Principles of Dietetics.* By R. Hutchison, M.D.Edin., F.R.C.P. Fourth edition. London: E. Arnold. 1916. (Med. 8vo, pp. 637; 3 plates, 33 figures. 16s. net.)

[4] *Feeding the Family.* By Mary S. Rose, Ph.D. New York: The Macmillan Co. 1915. (Post 8vo, pp. 456; illustrated. 9s. net.)

[5] *Food and Fitness, or Diet in Relation to Health.* By J. Long. London: Chapman and Hall. 1917. (Cr. 8vo, pp. 212. 5s. net.)

[6] *Sanitation in War.* By Major P. S. Lelean, C.B., F.R.C.S., R.A.M.C.; with an introduction by Surgeon-General Sir A. Keogh, K.C.B., M.D., F.R.C.P. Second edition. London: J. and A. Churchill. 1917. (Fcap. 8vo, pp. 341; 54 figures. 6s. net.)

## NOTES ON BOOKS.

### BOOKS ON BABIES.

THE sixth edition of Dr. CROZER GRIFFITH'S popular book on the *Care of the Baby*[7] has been revised and brought up to date. It has circulated widely in America, and is as good a book on the subject as any lay reader could hope to find; there is little in it that the anxious mother could misinterpret, and it is full enough to satisfy the most exigent. The subject of infant feeding is one that is much discussed nowadays, from both the practical and the scientific point of view. Adjunct Professor R. H. DENNETT has written[8] an account of the subject from the practical point of view, and he quotes a number of illustrative cases that add not a little to the didactic value of his book. In addition he details methods of treating the digestive disorders to which infants are prone; this part of his work will appear particularly valuable to the practising physician. The treatise on *Diseases of Nutrition and Infant Feeding*,[9] by Professor MORSE and Dr. TALBOT, is a more academic volume. It is stuffed with facts and figures and percentage values. It gives a detailed description of the scientific basis of rational infant feeding, and an account of the method of infant feeding taught in the Harvard Medical School. It is a book for the study rather than the nursery, and contains a great deal of valuable information. Dr. W. R. RAMSEY'S manual on the *Care and Feeding of Infants and Children*[10] is said to be a textbook for nurses. It appears to be designed for nurses who have received a thorough hospital training, with instruction in the elements of anatomy, physiology, chemistry, medicine, and surgery. It contains thirty-one chapters and covers the ground in a fairly satisfactory manner. The illustrations are well chosen; the text rather stands in need of revision. Thus, on p. 69 it is stated that the "two lateral central incisors" erupt at the age of 6 to 9 months; on p. 151 it is said of the bones of the head in rickets that "They are sometimes so soft that they can be dented like the case of a watch," a sentence that would give a wholly erroneous impression to any one unacquainted with the general excellence of American watches. On p. 243 general vaccinia is described as "general vaccination"; on p. 268 the sixth paragraph contains an excellent specimen of dittography.

[7] *The Care of the Baby.* By J. P. Crozer Griffith, M.D. Sixth edition, thoroughly revised. Philadelphia and London: W. B. Saunders Co. 1915. (Post 8vo, pp. 463; 101 figures. 6s. 6d. net.)

[8] *Simplified Infant Feeding.* By R. H. Dennett, B.S., M.D. Philadelphia and London: J. B. Lippincott Co. 1915. (Med. 8vo, pp. 359; 14 figures. 12s 6d. net.)

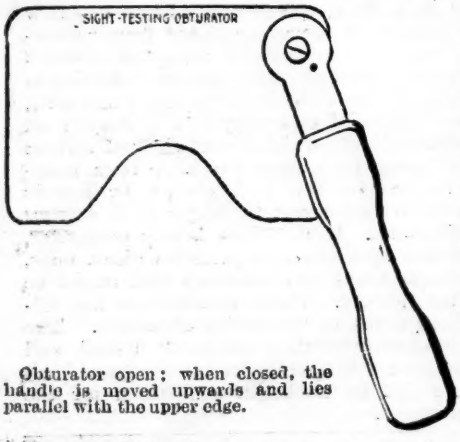
[9] *Diseases of Nutrition and Infant Feeding.* By J. L. Morse, A.M., M.D., and F. B. Talbot, A.B., M.D. London: Macmillan and Co., Ltd.; New York: The Macmillan Co. 1915. (Med 8vo, pp. 354. 10s 6d net.)

[10] *Care and Feeding of Infants and Children: A Textbook for Trained Nurses.* By W. R. Ramsey, M.D. Including Suggestions on Nursing, by Margaret B. Lettice and Nann Gossman. Philadelphia and London: J. B. Lippincott Co. 1916. (Post 8vo, pp. 300; 122 figures. 9s. net.)

## MEDICAL AND SURGICAL APPLIANCES.

### *Sight-Testing Obturator.*

MAJOR A. R. GALLOWAY sends a description of a sight-testing obturator, consisting of an opaque screen with handle attached and a spring clip to fix it in position for use. The opaque screen is of such size, and has a curved portion of such shape and size cut out of its lower part, that the eyes of a person under examination can be alternately occluded and uncovered, and their separate vision determined, while that person has no knowledge as to which eye is being tested at any given moment. When not in use, the handle folds along the screen, and the obturator may be kept in the ordinary lens case, to which it makes a very useful addition.




Obturator open; when closed, the handle is moved upwards and lies parallel with the upper edge.

When in use, the handle is sprung into position, the examinee is asked to keep both eyes open, and to read Snellen's distance type from above downwards at the test distance. The screen is lowered from above downwards over one eye and the vision of the other noted. Then, by slight lateral movements of the obturator, the eyes may be alternately occluded and uncovered without conveying any information as to which eye is being examined at any one moment. Certain would-be malingerers imagine they are looking through glasses and think it safe to read an extra line or two; others say they cannot see through the dark "glass" when the instrument is in use. The principle of which the obturator takes advantage is that, under ordinary circumstances, an individual cannot say what is seen by the right and what by the left eye.

The advantages claimed for the appliance are that it affords: (1) Great facility in testing the visual acuity of each eye separately and of both together when dealing with a large number of persons in rapid succession. The position of the examiner's arm is much easier when using the obturator than when holding a card or other opaque object first in front of one eye and then the other. (2) Easy detection of malingering, as the person examined does not know which eye is under examination. (3) Rapid demonstration of latent deviations, of slight squints, and of amblyopia ex anopsia. (4) In artificial illumination the obturator forms its own shade for the eyes that are being tested.

## MEDICAL EXAMINATION OF RECRUITS IN FRANCE.

THE efficient medical examination of recruits is a much more difficult task than the average layman understands, and its complexity was not fully understood by many who raised battalions at the beginning of the war in response to Lord Kitchener's appeal, or by some of those appointed to the command of battalions and other units more recently raised. It must also be admitted that the majority of the medical men invited to undertake these examinations had no experience of work of the kind, and that the instructions they originally received as to the degree of physical fitness for which they must look in an acceptable recruit may have left them in some doubt as to the scope of their duties, and in some instances as to the defects which should lead to the rejection of men. Lastly, in the first rush, medical examining officers were expected by enthusiastic recruiters to get through a greater number of examinations in a given time than was physically possible if each man was to receive the careful examination theoretically desirable. The instructions have now been made more precise, and medical officers are now no longer asked simply to reject or pass a man as fit for service as a soldier. They can class any man who comes before them in one of several grades of efficiency.

To answer the question whether a man who is not fit for general duty abroad is fit for garrison duty abroad or at home requires a certain amount of experience of military life and an estimate of the degree of physical strain imposed by each of the various classes of military work. The duty of a medical examiner of recruits is therefore still difficult, and it may be interesting to give a short statement of the manner in which the examination of recruits has been systematized in France, where, of course, experience in examination of large numbers of men for a citizen army is more widely disseminated.

The general question as to what should be done with the conscript or recruit in France is divided into two parts, the first of which concerns the physical and mental suitability of the individual for any kind of military duty whatever. The second part deals with the much finer question of the kind of work on which a man passed as fit for a soldier shall be employed. This is left for leisurely consideration at a later date.

The decision on the first question is delivered after consultation with his colleagues, and after consideration of the medical evidence on the point, by the president of a board appointed for the purpose. Such president is always the prefect or chief representative of the Government in the department where the board is sitting, the other members consisting partly of civilian officials, partly of military officers. The medical evidence given is partly as to facts, which the board may or may not be able to see for itself, and partly as to deductions which may be based on those facts. There is provided for the joint use of the board

and of the recruiting medical officers a code which shows what decision should be reached in the presence of certain given facts. Besides deciding whether a given individual shall be admitted to the army or rejected entirely or temporarily, the board also decides to which of the two main forms of military service, armed or auxiliary, the accepted man shall be assigned.

The general procedure is as follows: The members of the board sit at a long table at the end of a room, and facing the entry. Each proposed recruit in his turn comes into the room already stripped to the skin. As he walks up to the table, the board and the medical men attached to it have an opportunity of judging to what class he apparently belongs, and as soon as his name has been identified on the register his technical examination begins.

It is conducted usually by three or four medical men, each of whom pays attention to some particular point—for example, the formation of the feet, the condition of the heart and lungs, the teeth, the eyes or the ears—and as a rule it is completed forthwith in the presence of the board. Should, however, a doubt arise on any point, the case is put back for further examination by a specialist if need be, and completed later on; the flow of other recruits through the room thus remains uninterrupted. The technical examination concluded, each medical man who has taken part in it states his opinion, together with his reasons, as to whether the individual should be accepted or rejected temporarily or finally, and, if accepted, whether he should be assigned to the armed or the auxiliary branch of the service. These opinions given, and any questions which members of the board may choose to put having been answered, the decision of the board is reached, and recorded by the president forthwith.

The leading points to which the medical examiners have to address themselves are these:

Is the proposed recruit a healthy, well-built individual, likely to be capable of using his limbs in the fashion required by a soldier?

Does any peculiarity of his conformation render him liable to suffer from the wearing of uniform, or from carrying weapons or equipment?

Does he present any evidence of morbid predisposition such as will render life as a soldier directly dangerous to him?

Is he the subject of any malady or defect which, although it does not lessen his own capacity for service, makes him unfit for enlistment because it will make intimate association with him disgusting?

Comparatively few men are altogether free from defects; and though some defects may suffice by themselves to decide all the points on which the board has to make up its mind, in other cases it may be necessary to weigh up their individual or aggregate importance, and in this task also the medical examiners assist. Experience shows that the boards are inclined to overestimate the importance of defects that they themselves can see, and underestimate those which are revealed solely by technical examinations. Consequently the preface to the code of instructions prescribes that the medical witnesses shall always give the reasons for the opinions they express, taking care in particular to bring out clearly the reasons why they attach importance to such defects as may not be visible to the board itself, and stating, if necessary, why too much importance should not be attached to those which are plain to everyone.

A proposed recruit can bring with him if he pleases a certificate from a private medical practitioner, but it is received merely as a statement of alleged fact, or, in other words, as a statement that the individual to whom it relates is the subject of this or that defect, or has had at some time past an illness presumed to have left behind it a condition rendering him unfit for any form of service, or fit for service solely in the auxiliary branch of the army. There is a strict rule against any medical man who lives in the same town, or even in the same department, as a proposed recruit taking any part in the proceedings of the recruiting board before which the latter appears.

Men not accepted forthwith for either the armed or auxiliary branches of the service are classed either as exempted or adjourned. The former are men deemed not likely to be ever fit for service, and the latter those who, either on account of existing illness or immaturity, it is thought should not be enlisted for some time. Men of both classes are told to present themselves again for examination after the lapse of a certain period. A man twice classed as exempted used to be free from military obligations altogether. Under a recent regulation, however, he is now liable to be re-examined from time to time. A recruit whose enlistment has previously been adjourned on account of immaturity, and who when he comes up again is found still to lack the muscular development necessary for the armed branch of the service, passes automatically into the auxiliary branch provided his general health is sound.

The second part of the main question only concerns, as a rule, those accepted for the armed branch of the service. The point now to be decided is for what form of military work the recruit is best fitted, and it is sometimes not finally settled until the recruit has been under observation for some little time. He then goes before a small board, which, guided to some extent by medical opinion, assigns him definitely to one or other of the numerous branches into which all armies alike are divided.

This board is formed of experts intimately acquainted with the kind and degree of the physical strain imposed by the work of various corps. A man, for instance, whose feet are questionable may get on very well in the cavalry or artillery but would inevitably break down if put into a line regiment. Another may have defects which would make riding difficult for him but would not interfere with his utility in the engineers. A third may present defects unfitting him either for the cavalry or infantry but yet possess the vigour and strength desirable in a recruit for the medical department.

The code of instructions mentioned in the early part of this article sometimes includes invaliding as well as recruiting questions and has been modified on several occasions during the past two years without being entirely revised. Consequently the guidance afforded is not equally direct throughout. The following are some excerpts:

*Heart.*

*Cyanosis* resulting from malformation of the heart or the large blood vessels justifies total rejection.

*Hypertrophy*, if sufficient to cause decided increase of the area of cardiac dullness, justifies total rejection. Mere displacement of the apex or of the edge of the dull area is insufficient to establish a diagnosis.

*Lungs.*

*Pulmonary tuberculosis*, however slight, entails total rejection.

*Asthma* is compatible with auxiliary service, but justifies rejection if severe and obstinate.

*Skin.*

*Eczema*, if it affects a large extent of surface and is proved to recur frequently and be obstinate in character, justifies total rejection.

*Sycosis* is compatible with general service, but, if of frequent recurrence, justifies allocation to auxiliary service.

*Obesity*, when so marked as to involve difficulty in walking and other movements, may justify total rejection, but in ordinary cases the subject is fit for auxiliary service.

*Larynx.*

*Chronic laryngitis*, not of tuberculous origin, is compatible with general service, even when accompanied by mucous thickening.

*Nose.*

*Chronic rhinitis* of all kinds, including hay fever, is compatible with general service unless accompanied by ozaena.

*Mucous Polypus.*—Nasal polypi are compatible with general service.

*Tumours.*

*Simple tumours and horny growths* are incompatible with general service, if of such size or so placed as to be likely to interfere with the soldier's movements or carriage of weapons; but they are compatible with auxiliary service.

*Ranula* is compatible with general service unless very large.

*Abdomen.*

*Inguinal hernia*, whether single or double, is compatible with general service, provided that it is easily reducible and capable of being kept reduced.

*Femoral hernia*, being generally difficult to keep reduced, and especially dangerous when strangulated, is compatible only with auxiliary service.

*Chronic infections of the stomach and intestines*, when their existence is well demonstrated, and is accompanied by emaciation, justify total rejection.

*Varicocele* justifies total rejection only when it is of such a size as to cause real difficulty in walking.

*Lower Extremities.*

*Varicose veins*, provided they are not the seat of phlebitis and are unaccompanied by swelling of the feet or by ulceration, are compatible with several forms of general service.

*Hammer toe*, when so developed as to bring the dorsal surface into contact with the ground and produce painful projection of the joints, unfits the subject for general service, but is compatible with auxiliary service.

## THE PREVENTION AND ARREST OF VENEREAL DISEASE IN MEN.

A LECTURE on "The prevention and arrest of venereal disease in men" was given by Dr. C. J. Macalister, of Liverpool, at the Royal Institute of Public Health, on January 31st. Lord SYDENHAM, who occupied the chair, emphasized the need for active measures in view of the excessive incidence of venereal disease which, to judge from all previous experience, might be expected to follow the war.

Dr. MACALISTER said that the history of venereal disease was intertwined with the history of English morals, and the history of English morals was the history of the English woman. In Chaucer's England a state of things approximating to polyandry must have existed. The rise of chivalry gave a place to feminine virtue, and from the middle of the sixteenth century the status of woman began to be recognized. The nineteenth century was better than the eighteenth, and the eighteenth century better than the sixteenth, but even down to 1866, when the Contagious Diseases Act was abolished, the tendency had been to condone immorality in men, and even to sanction it. The subject was a bisexual one, and the means taken to stem the disease in the one sex must be applied to the other. Every war in the past had been followed by an increased incidence of syphilis in the belligerent countries. In lecturing to medical men in the smaller towns on the subject, he had been informed that although there might be a good deal of illegitimacy there was no disease to speak of, but the danger was that men coming back from the war might act as diffusing agents. From all other forms of infection people endeavoured to escape, but here they were willing to take risks. Ignorance accounted for much of the evil, and the first weapon was a policy of education. The war had made it possible to reach, not only large bodies of youths, but of young married men, fathers of families, of high and low degree. In many of the large camps he had visited, not more than two men per 1,000 were under treatment—a ratio which must compare very favourably with pre-war conditions, in or out of the army. After dealing with the education of the boy before and at adolescence, Dr. Macalister passed on to consider the subject of marriage. Early marriage, he said, might be regarded as a physiological remedy, but people of the present day were obsessed with ideals of luxury which had the result of postponing marriage. The leavening influence of the war and the relative poverty that would follow in its wake might possibly lead to a more modest ideal of happiness, and early marriage would help the cause. As to prophylaxis, there was some sentimental opposition, but it was only right that preventive treatment should be employed in cases which had recently been subjected to infection. Metchnikoff's experiments showed that the syphilitic organisms might be destroyed by the application of calomel ointments even hours after inoculation, but it had to be remembered that the experimental work was in the hands of experts, who were able to apply the calomel to the actual point of infection. That a considerable proportion of people got syphilis in spite of prophylactic measures was certain. He had also seen men severely injured by using too strong a solution of permanganate as an irrigation against gonorrhœa. The fact that there was no safety short of chastity should be insisted on. In conclusion, he indicated some deterrent methods. It would greatly help matters if seduction under promise of marriage at any age were made a punishable offence. Every case of illegitimacy should be inquired into by law, whether the child were born alive or dead, with the object of establishing the responsibility of the man as well as of the woman. He thought that notification would be inadvisable at the present moment; it would be time for this when education had done its work and the quack had been cleared away. Everything should be done to induce sufferers to get treatment at the earliest possible moment. He also urged that the medical profession should play its part in the marriage contract. The clergy dealt with the rites of holy matrimony, and the lawyer presided over the legal formularies, but the doctor was left out. There was no sanctity in any marriage unless freedom from infectivity was regarded as an essential.

Dr. F. W. MOTT agreed as to the efficacy of much prophylactic treatment, and said that while, of course, the great thing was to prevent men having promiscuous intercourse, fear of consequences was not always effective, for in some individuals the sexual instinct was stronger than life itself; it was necessary to look facts in the face. He went on to speak of the discovery of salvarsan, by which, he said, syphilis was cured in a great number of instances. In his own practice recently a very remarkable case occurred. A woman, aged 26, was admitted to one of the London asylums. She had a healthy boy, aged 8, but after his birth she had had a succession of miscarriages. During another pregnancy, after admission to the asylum, in which the child was born dead, she had convulsions. He examined the cerebro-spinal fluid, and diagnosed the case as general paralysis of the insane. She was very young to have that disease, but she died within a few months, and on examination it was found that her brain, while showing no evidence of the disease, contained spirochætes, which had produced the reaction. In this case it was probable that the woman had been infected by her husband after the birth of her first child. The child gave a negative Wassermann reaction, and she herself a positive. Dr. Mott mentioned one or two instances of innocent infection, by way of the mouth, which had come under his notice.

Sir BRYAN DONKIN disagreed with Dr. Macalister's notion that education was going to do so much more than it had hitherto in diminishing what had been referred to as vice. Even before the evils of syphilis had been brought so graphically before the public as the result of the Royal Commission a large number of people were aware that syphilis was an exceedingly dangerous disease, and he could not see that the addition of this recent knowledge was likely to do very much more. With regard to Metchnikoff's treatment, Dr. Macalister had mentioned some failures, or probable causes of failure, but this ought not to be brought in argument against a series of experiments which had shown the method to be efficacious. It was perfectly true that there were no bodies of statistics to show the difference in the percentage of infection among the general population, but there was good reason to believe that a considerable diminution had taken place among soldiers. It seemed that but little importance had been attached to the preventive treatment proposed and experimented on by Metchnikoff, and the wider spread of this knowledge had been discouraged. Surely a sufficient case was made out for medical men as a body to investigate it for themselves before it was thrown back into obscurity. This was the only disease which people seemed afraid to touch at the source. Dr. Macalister said that people who would take extreme care to avoid scarlet fever would take risks with regard to venereal disease. But the motives at work differed *toto coelo* in the two instances. It was the duty of the medical profession to see what there was in the proposed method of prevention and publish the knowledge of it when satisfied that it was efficacious.

The Hon. R. B. REES, M.P., of Melbourne, complained of the temptations to which Australian soldiers were exposed in Britain and in Egypt.

Dr. OTTO MAY said that from the point of view of moral responsibility there might be little or no difference between the two sexes, but it was not to be doubted that as an agent of infection woman was much more dangerous than man. As to preventive treatment, he quite acknowledged, with Dr. Macalister, that education was a most important factor. At the same time, he thought it was necessary to have some clear thinking on the subject of prophylaxis. Prophylactic means had been made available by the military authorities for men in the army, and he thought that such means ought to be placed at the service of the civilian population as well. Was there, after all, any great difference ethically between taking prophylactic measures and maintaining such a chastity as was merely inspired by fear of consequences? A morality which was merely bolstered up by fear was a morality not worth talking about. He was well aware that any popular propaganda on the subject of prophylaxis would meet with

a good deal of opposition in many quarters, but all the same he thought it ought to be pers vered with. The sooner the whole question of morality was divorced from methods of treatment of the disease the better. The two aspects—the moral and the medical—must not be confused.

DR. SALEEBY pointed out the difficulty of having to warn men as to the consequences of contagion, and at the same time being compelled to inform them of prophylactic means. The only real thing to appeal to was their respect for womanhood.

Professor H. R. KENWOOD, as one who was concerned with dealing with the scheme in a rural area—Bedfordshire—said that he found that almost everybody who got venereal disease went not to the doctors but to the chemists, and also wrote to quacks in London and elsewhere. Once the scheme of treatment of venereal disease had been started in any part of the country, all quack practice, and all chemist's practice, must be stopped. In reply to Mr. Rees, he said that venereal disease, so far as could be estimated, was probably as rampant in Australia as it was in this country. The high pay of the colonial soldiers contributed to their downfall.

DR. MACALISTER, in replying on the discussion, agreed that the point as to prophylaxis must not be put on one side; it was absolutely essential, but he did not agree with Dr. Otto May that the matter could be separated from morals.

## THE MEDICAL SERVICE AND THE ARMY COUNCIL.

NEED FOR ADDING THE DIRECTOR-GENERAL, ARMY MEDICAL SERVICE.

THE following letter, which appeared in the *Times* of February 3rd, is of importance as coming from the chairman of the committee which placed the supervision of medical and sanitary matters under the Adjutant-General of the Forces, so that the office of the Director-General Army Medical Service became one of the departments of the Adjutant-General's office.

Sir,—The honour bestowed by the King upon Sir Alfred Keogh will rejoice all those who know the true tale of the Royal Army Medical Corps during the war. Some day the full story will be told. The English-speaking world will know what happened in September, 1914, and understand the events that led to the recall of Sir Alfred Keogh from the educational work upon which he was engaged to his old post of control at the War Office.

If the Secretary of State for War wishes to recognize the work of Sir Alfred Keogh and that of the R.A.M.C. under his control, there is a method that would appeal to him and them more than any personal honour or distinction. When the committee of which I was chairman was reconstituting the W.O., and proposed to put the Director-General of Medical Services under the Adjutant-General, I had a visit from Sir Alfred Keogh, who in warm and almost impassioned language tried to induce me to reconsider the proposal. At that time, when we were still under the influence of South African experience, and when only one or two prescient soldiers foresaw the inevitable European war, all military influences were brought to bear upon us to limit the numbers of the Army Council. No one except Sir Alfred Keogh could envisage the R.A.M.C. other than an important but small branch of the "services" attached to an army in the field. It was not realized that to keep a force in the field was at least as vital a necessity as to recruit it.

September, 1914, swept away this illusion—but the mischief was done. How much of the suffering undergone by our soldiers then and since was due to the shortsightedness of my committee, and notably of myself, will never be known. Certainly the control of the Adjutant-General's branch over the R.A.M.C. was and is responsible not only for the early failure to grip the medical factors of the war, but for the hampering conditions under which Sir Alfred Keogh has worked. His triumphs, and those of the R.A.M.C., have been achieved in spite of obstacles that the subordination of science to ignorance, of elasticity to military discipline, explains but cannot justify.

I would appeal to Lord Derby to strengthen the Army Council by placing upon it the D.G.M.S., and to free from the control of a purely military officer (admirable as is Sir N. Macready in the sphere congenial to him) a body of men mostly volunteers from highly trained professions and dealing with technical difficulties altogether outside the orbit of vision in which the soldier pure and simple habitually moves. Thus would the work of Sir Alfred Keogh be happily recognized, to the infinite advantage of our sick and wounded to-day and to-morrow.

Yours faithfully,
ESHER
(Sub-Commissioner, British Red Cross in France).

France, 1917.

The committee to which Lord Esher refers was the War Office (Reconstitution) Committee, which published the third part of its report—that dealing with the medical service of the army—in March, 1904. The committee consisted of Lord Esher, Admiral Sir John (now Lord) Fisher, and Colonel Sir George Clarke (now Lord Sydenham). When the committee reported the office of Commander-in-Chief had disappeared, and the Army Council had become the supreme governing body of the army.

The Army Council, as then established, consisted of the Secretary of State for War (president), the chief of the Imperial General Staff, the Adjutant General, the Quartermaster-General, the Master-General of the Ordnance, the Parliamentary Under Secretary of State for War (civil member), and the Financial Secretary (finance member), with the Permanent Secretary of the War Office as secretary. To it has since been added the Director-General of Military Aeronautics, and the deputy chief of the Imperial General Staff.

According to King's Regulations (1912) the duties of the department of the Adjutant-General were divided among and dealt with by the Director of Recruiting and Organization, the Director of Personal Services, the Director of Mobilization, and the Director-General Army Medical Service. The main function of the Adjutant-General is the raising, organization, and maintenance of the military forces, including all matters relating to personnel, and administrative arrangements connected with training and education.

Lord Esher's committee reported that too much importance could not be attached to the sanitary service of the army in peace and war, and stated that it had been represented to it "that a place on the Army Council ought to have been provided for the Director-General of Army Medical Services, who was a member of the defunct War Office Council." The committee continued as follows:

10. We cannot accept this view. The Army Council is not, and cannot be, a representative body as regards the several arms and departments. The Royal Army Medical Corps exists to serve the army in a most important capacity, but the first object must be to create and to maintain an army, and this is the function of the Army Council. To admit the principle of representation would destroy the character of the Council.

11. Sanitation in war and in peace is closely bound up with discipline, and we therefore consider that the proper position of the Director-General of Army Medical Services is, as we have laid down, under the Adjutant-General, whose duties are specially connected with the person of the soldier.

12. We do not admit that, under this arrangement, the status and the power of the head of the medical services will be lowered. We believe, on the contrary, that his position will be considerably strengthened in peace and in war.

13. The Council as a whole is now responsible for the welfare of the soldier. It has full powers over the whole range of military requirements and there should be no danger that sanitary considerations will be neglected. The Adjutant-General, as a member of the Council, occupies a far stronger position than his predecessors, and will be able to represent effectively the medical needs of the personnel of the army with which he is specially charged. Moreover, the Director-General, if necessary associated with a civil representative of the Army Medical Services Advisory Board, should be summoned to the Council whenever his advice and specialist knowledge are required.

We need not discuss the cogency of these arguments at present, for they have been answered by Lord Esher himself in the letter quoted above, but we may note that immediately after the issue of the report the British Medical Association called attention to this defect in the recommendations of the Committee and strongly urged that the Army Medical Service should be represented on the Army Council by an officer of that service, who would personally represent the sanitary requirements and general and medical needs of the army. The Association went on to point out that the proper method of dealing with the Medical Service of the army was to give it responsibility and power, and that to secure this essential its direct representation on the Army Council was of vital importance to the army and to the nation.

British Medical Journal.

SATURDAY, FEBRUARY 10TH, 1917.

## THE FOOD SUPPLY OF THE UNITED KINGDOM.

The report on the food supply of the United Kingdom, drawn up by a committee of the Royal Society at the request of the President of the Board of Trade, which was issued last week, is a document so full of matter that it is difficult to give any adequate account of it in a brief space, and the difficulty is not diminished by the rather disjointed manner in which the information is presented. The first part contains an estimate of the annual food supply of the United Kingdom, imported and home produced, in the period before the war (1909–13). After consideration of the dietary requirements of a nation for the most part engaged in active work, the Committee is convinced that they cannot be met satisfactorily on a less supply in the food, as purchased, than 100 grams protein, 100 grams fat, and 500 grams carbohydrates, which yield approximately 3,400 calories per "man" per day, a "man" being an average workman doing an average day's work; the Committee has adopted this as the minimum standard. Generally speaking, a woman or child requires less food than a man, and to convert the population of men, women, and children into units, or "men" as defined above, the total number must be reduced by 23 per cent. In reckoning diet 100 men, women, and children equal 77 units, that is to say, "men." The data upon which this estimate is formed are given in an appendix.

The total quantities of foodstuffs available during the period 1909–13 provided 4,009 calories per "man." There has thus been a certain margin, and the Committee calculate, taking the minimum physiological standard mentioned above, that there has been either wasted or consumed in excess of requirements, of proteins 11 to 14 per cent., of fats 25 to 30 per cent., of carbohydrates 10 to 14 per cent. It is to be noted that the figures for quantities of food are for weights as purchased; no attempt has been made at correction for loss during distribution, nor for digestibility. Benedict is quoted for the statement that in a mixed diet about 92 per cent. of the total protein is digested, 95 per cent. of the total fat, and 98 per cent. of the total carbohydrate. In Langworthy's diet for moderate work the energy value of the total food (protein 115 grams) as purchased is 3,800 calories, as eaten (protein 100 grams) 3,500 calories, as digested (protein 95 grams) 3,200 calories.

The second part of the report deals with the food supply in 1916. Writing at the end of July, 1916, the Committee state that down to that time the supply of food had provided a general margin of about 5 per cent. above the minimum necessary for proper nutrition and rather more as regards the supply of energy, so that a reduction to this extent would still furnish amounts of the essential food constituents conforming to the standard adopted. Such a reduction could be borne without serious injury to the community, provided that steps were taken to ensure the equitable distribution of the available food throughout the population. The Committee state that the rise in prices had then already accentuated the inequalities of distribution and that any curtailment of supplies, even to a limited extent, would result in the poorer classes obtaining less than was needful for safety. Speaking as physiologists the members of the Committee lay stress on the fact that in buying food the labouring population is buying energy, that is, the power to do work. If the rising prices curtail for any class of the community its accustomed supply of food, its output of work will of necessity be reduced, and it is added that "it is important to remember that a slight reduction of food below the necessary amount causes a large diminution in the working efficiency of the individual."

In an appendix to this part of the report particulars are given of army rations. For the present purpose the army rations at home are the more interesting. The weekly rations issued in kind are as follows: Beef, 84 oz. (5 lb. 4 oz.); bacon, 14 oz.; bread, 112 oz. (7 lb.); sugar, 14 oz., yielding an energy value of 2,521, but the men purchase various articles of food from a long list, yielding on an average 1,510 calories a day, giving a total energy value for the diet of a man in the home army of 4,031 calories a day. The recent letter of the Food Controller suggests voluntary reduction in the amount of meat, bread, and sugar; meat, it is said, is to include bacon and other food prepared from the pig, as well as game, rabbits, poultry, and tinned meat. The meat is to be the uncooked weight, including bone and fat. The allowance of bread is 4 lb., or, in the alternative, 3 lb. of flour for bread-making, and the amount of sugar 12 oz. a week. The amounts are, however, for a mixed population of men, women, and children, whereas the army ration is for men doing fairly hard physical work. To get the equivalent of these articles of food issued to the army at home to which the civil population would be entitled, if it were rationed at the same rate, we may make a reduction of 23 per cent. We then get, for the three classes of food mentioned in the army at home, beef and bacon about 4 lb., bread about 5½ lb., and sugar about 11 oz., as the amounts a head to which the civil population would at that rate be entitled. This would yield an energy value of about 1,844 calories a head a day. The voluntary ration, assuming that the 2½ lb. of meat consists of 2 lb. of beef and 8 oz. of bacon, would yield energy value of about 1,357 a day. As has been said, the soldier at home adds various articles of food, yielding on an average 1,510 calories a day. If the civil population exercised the same privilege, it would get a total diet yielding an energy value of about 2,867 a day. Comparing this with the standard taken by Atwater of 2,700 calories for a man doing no muscular work, and of 3,000 calories for a man doing light muscular work—probably rather high estimates—it would appear that the voluntary ration supplemented from the list of extras would, when a suitable deduction is made for a mixed population of men, women, and children, be sufficient. The difficulty of ensuring equality of distribution so that all members of all classes receive the minimum will be great. It would seem to be one of the rocks on which the German organization has split.

## INDIAN MEDICAL SERVICES.

### II.

The subject dealt with in the ninth chapter of that part of the report of the Royal Commission on the Public Services in India which refers to the Medical Services is of great importance, for it concerns the staffing of the Government medical colleges. There

are five such colleges—at Madras, Bombay, Calcutta, Lucknow, and Lahore respectively. At present there are thirty-seven whole-time professorships in these medical colleges, and of these thirty-three are ordinarily reserved for officers of the Indian Medical Service, while four are open to all comers. There are also seven chemical examiners, who, in addition to their ordinary duties as Government analysts, in most cases also teach chemistry to the students at the medical colleges; of these, six are officers of the Indian Medical Service. The Commission received written statements from certain private practitioners objecting to this system, on the ground that officers selected for professorships might not have the necessary qualifications for teaching, but the Commissioners note that this position was not sustained by them in its entirety in their oral examinations. The Commissioners are satisfied that, "viewing the question broadly, the qualifications of the present officers are fairly good, whilst there is no question but that several of them are distinguished specialists in their subject, and thoroughly efficient teachers." They consider, however, that there are indications that the number of applications is limited, and that the supply of those with suitable qualifications is unduly restricted. They distinguish between the clinical chairs of medicine, surgery, clinical surgery, ophthalmology, and midwifery on the one hand; and what are described as the scientific chairs of physiology, pathology, anatomy, materia medica (or pharmacology), and biology on the other. The restriction of the field of suitable candidates is said to be "especially marked in the case of the scientific chairs." It is pointed out, on the other hand, that the great experience accumulated in their ordinary course of practice is in a special degree calculated to fit officers of the civil medical service for the highest form of clinical teaching, and the opinion is expressed that "since the clinical chairs can always be well filled by members of the Government services, the cause of medical education has little, if anything, to gain from opening them to the general public," but that, on the contrary, "there would be a distinct loss to medical progress were such a course adopted, since the assurance that these chairs are reserved to the services is one of the most powerful attractions for men of scientific tastes and aptitudes." They accordingly recommend that the clinical chairs and their connected posts should be reserved, so long as a fit person is available, for officers of the civil medical services, however recruited. They also recommend that officers holding the clinical posts should be allowed private practice, but that this should be restricted to consulting practice in their own subject, "the term consulting practice being interpreted in the sense understood by London practitioners." The recommendation to allow occupants of chairs in these subjects to engage in consulting practice is in accord with the practice, if not the theory, not only in this country but on the continent of Europe, although the proposed restriction to "consulting practice in their own subject" will obviously prove unworkable if lay officials are to be allowed to attempt rigidly to enforce it. There is no such rigid demarcation between, for instance, medicine and surgery, or between medicine and ophthalmology, as is assumed.

With regard to the scientific chairs in medical colleges and their connected posts, it is recommended that they should be thrown open to all comers, and that officers of the civil medical service should compete for them on the same terms as others. It is recommended also that an officer who has specialized in a scientific subject should be kept to this class of work; here, again, a rigid rule rigidly enforced would not make for efficiency. There is no reason why a man who has specialized in pathology should not, if he so wishes, go to a clinical post in medicine; as pathologist he ought to be given charge of beds, otherwise he would be apt to get out of touch with practical medicine, and some years' work in pathology is perhaps the best of all trainings for a professor of medicine. So, again, with anatomy; there can be no sound reason why a teacher of anatomy should not be eligible to be appointed professor of surgery or clinical surgery. The proposal that these posts should be thrown open to all India is probably sound, and the same would apply to connected posts—those of assistants to the professor in various capacities. The reason given by the Commissioners for appointing specialist assistants to the more important professors, though sound, is not the strongest that can be advanced. The reason given is that at present, when officers go on leave, temporary arrangements have to be made which are sometimes of an unsuitable character, and that for this reason a central reserve of specialist officers who could be employed in the various provinces as occasion arose should be formed. The really strong reason for appointing specialist assistants is that they should have had the training in teaching their subject which only a considerable period of work in such a department can give. It would be desirable to allow a good deal of elasticity here and to provide that aspirants to teaching appointments should have the opportunity of working in more than one university. "Home-keeping youths have ever homely wit," and the majority of men who desire to become teachers of scientific subjects find it desirable to study in several schools in different countries. All future incumbents of scientific posts should, it is recommended, be debarred from private practice, but, if medical practitioners, given a monthly allowance instead.

It is recommended that the recruitment for posts of medical examiners and alienists and for the bacteriological department should follow similar lines, and the occupants of such posts appointed in future should not be allowed to take any private practice of a medical nature at all. It is advised, however, that the Government of India or any local government should, where no qualified private chemist or alienist was available, be entitled to call upon officers serving in these departments to give to the public their services in their own special line, but that the fees so earned should be credited to Government, and a suitable monthly allowance made to the officer concerned. This plan has been followed by some local authorities in this country but has little to commend it. It deters many men of superior talents from entering the public service.

## THE ANNUAL REPORTS OF TUBERCULOSIS SANATORIUMS.

YEAR by year a fresh supply of experience is being accumulated as to the actual value of sanatorium treatment to the community. In all the reports issued by medical or lay authorities the statistical tables of results apparently achieved, hold a prominent place. But in the case of a disease so chronic as tuberculosis such statistics are apt to be very misleading. This fact is frankly acknowledged in a very full report, prepared by its clerk, for the information of the Insurance Committee of the Burgh of Glasgow. Great pains have evidently been taken to ascertain the present condition and whereabouts of

all patients discharged from sanatorium treatment within the jurisdiction of the burgh during a period of two and a half years ending in December, 1914. Very many patients who figured in the statistics of cases leaving the sanatoriums as "improved," or even as "disease arrested," were found to be dead. Taking capacity for work as the crucial test, it was found that as many as 70 per cent. of the early cases could be included, but that no less than 19 per cent. of such early cases had died. The proportion of deaths in the later stages of the disease was correspondingly higher, but many of them had been previously recorded as having been benefited by treatment. A considerable number of persons with advanced disease were found to be still capable of remunerative work, and herein also may be traced a statistical fallacy. Many cases, classed as advanced, have a better expectation of life than others with small local lesions. Prognosis depends more upon the virulence than upon the extent of the disease. But in Glasgow as elsewhere the need for getting hold of the cases earlier is very manifest. Unless treatment can be applied at the outset, it is very doubtful whether the lasting benefits obtained are in any way commensurate with the cost of obtaining them.

The continued outpouring of funds for the temporary repair of permanent damage is a serious matter at the present time. The physical salvation of the young adult is of greater importance now than at any other period. To hope for further legislation is futile, and it only remains for the local authority to use to the full the powers that it already possesses to enforce notification and to deal with early disease promptly. The admission of any but incipient cases into sanatoriums should be sternly discouraged. Sentiment must give way to national needs.

In the first annual report of the tuberculosis officer for Walsall the question of the treatment of the disease in children holds a prominent place. Overcrowding within the county borough tends to throw the children into close relation with acute and advanced cases, and a considerable proportion of them are found to be already infected. Failing any means of segregating the infecting agents, the institution of open-air schools is strongly urged and the partial conversion of schoolrooms for open-air classes is suggested. Many of the local industries are attended with the production of fine dust, especially in the metal works. In spite of warnings and instructions to the contrary, the workmen in such places continue to spit freely, although many of them are known to be consumptive, while the use of the spitting-flask is objected to as indicative of an infectious person whose company must be avoided. It is instructive to note in this report that in many instances the period of time between notification and death is remarkably short. There seems to be need for a stricter observance of regulations, and the question of overcrowding should be dealt with firmly by municipal authorities.

The third annual report on tuberculosis in the county of Hertford, for the year 1915, by Dr. H. Hyslop Thomson, contains evidence of much valuable work, in spite of difficulties incidental to the outbreak of war. The dispensary system would appear to be well organized, and to be closely associated with the County Nursing Association. With five dispensaries and nine visiting stations a good deal of ground has been covered. Domiciliary visitation, undertaken by the association without cost to the Insurance Committee, has proved to be effective in weeding out the early cases, and in localizing the more obvious centres of possible infection. This very liberal action may well be commended to other counties; it should be noted that the money thus saved by gratuitous service has been utilized to supply milk to patients needing it. After-care committees have been doing good work, and the need for the segregation of infective cases is recognized in a very practical way by the provision of houses to which patients can be removed for treatment on hospital lines. This is a step in the right direction, and though it must involve considerable expenditure it would seem to be a more effective means of checking the spread of the disease than any other that has yet been adopted. The fact that tuberculosis does not entirely depend upon heredity, or infection by contact, is shown by the results of statistical inquiry into these points. Less than half of a group of 550 patients gave evidence of family disease, while one-third only appear to have been subjected to possible infection by association within the home. While thus providing liberally for the care of actual sufferers, the county council, as may be judged from the report of its tuberculosis officer, is fully alive to the need for active preventive measures, and the methods already put in force bid fair to yield very satisfactory results, and are well worthy of imitation by some of the less enterprising authorities in other counties and county boroughs.

## NATIONAL SERVICE AND THE MOBILIZATION OF THE PROFESSION.

IN his speech at the meeting in Westminster on February 6th the Director-General of National Service made only a short reference to members of the medical profession, following on a similar reference to the position of ministers of religion. He said:

> There are two classes which seem to stand a little apart from the rest of the community in this matter of national service, because their services are required in a particular and special direction. I refer to doctors and ministers of religion. So far as the clergy of the Church of England are concerned, I have been in communication with the archbishops on this subject, and we have formulated plans which I hope will enable many of the clergy to give effect to what I know to be their particular desire and to offer themselves for national service other than that connected with their parishes. Others, again, will be put to do work of a special character, perhaps in different parts of the country. That will be done through the bishops and by their consent.
>
> As for doctors, I have been in touch with the President of the General Medical Council, and although my plans are not yet completed I hope it will be possible for me to arrange something with them on analogous lines. What we have to do is to see that the doctors are so mobilized and distributed that the needs both of the civil population and the army can be met, and that so far as possible specialists shall be put to do work for which they have taken pains to fit themselves in particular. With this exception I am going to appeal to the whole male population of this country between the ages of 18 and 61. I am glad to say that in this great national work Ireland will have an opportunity of taking her full share with the rest of the country. (Cheers.)

The proposed scheme has not, we understand, come in any formal manner before the General Medical Council or its President, nor before the Executive Committee of the Council, which, in the ordinary course, will not meet until February 26th, but prior to Mr. Chamberlain's speech the Central Medical War Committee for England and Wales had resolved to invite the profession to take action in the direction indicated, and had drafted a letter to Local Medical War Committees, making certain suggestions with regard to the manner in which the further call which is being made for medical men to accept commissions in the Royal Army Medical Corps, either for general service or for garrison duty, can best be met. It is realized that this further call will

put a great strain on the remaining members of the profession, and that it will entail cutting down the medical services rendered to the civil population; but it must be remembered that the military authorities have a legal claim on the services of every man of not more than 41 years (on the dates appointed by the Military Service Acts), and that the public must be prepared to put up with less medical attendance, as they have to put up with less of many other services and many commodities. The urgency of the present situation has been impressed by the Committee upon Government departments which employ or control the employment of medical practitioners, and the departments have been urged to induce local authorities to release every possible man. We understand that the Insurance Commissioners are notifying the Insurance Committees throughout the country that they must be prepared to deal promptly and effectively with the demands made upon them for the release of all practitioners under contract with them who can be spared. On the other hand, there is with regard, generally, to the position of local authorities of all kinds, an obligation on the medical profession to give those authorities definite assurances that the medical practitioners who remain will undertake to do the work, for which the authorities have contracted with the medical officers who have gone, as well as it can be done in the circumstances. It will, undoubtedly, prove necessary to institute special arrangements which may not infrequently place a considerable strain on the patriotism of those medical practitioners who remain. Different towns vary very much, for instance, in the distribution of population and of doctors. In some places the distribution of doctors is fairly even, in others a comparatively small number actually reside in the most populous workmen's districts. Moreover, it often happens that the practitioners in such districts are young men liable to military service, many of whom have already gone or will be affected by the present call. It may therefore be necessary on the one hand to arrange for the attendance of patients at central surgeries, and, on the other, for doctors living in other parts of a town to come to some arrangement by which they will undertake to attend at these central surgeries, and possibly, in some cases, to reside temporarily in the houses at which the medical men who have gone into the army practised. This would, of course, involve an arrangement among the medical practitioners in residential districts by which the patients of a practitioner who spends the whole or most of his time in what we have called the workmen's districts shall be attended by others who do not shift. If central surgeries were established it might even be possible for older men or those in infirm health to undertake a certain number of hours' work a day at the centre, liberating younger or more active men for attendance on patients who must be seen in their own homes. In any scheme of the kind it would be necessary to make arrangements for night and emergency calls; it might be found possible to arrange for one man in a certain district to be on duty for one or more nights in a week, on the same principle as one of the house surgeons of a civil hospital, or the orderly officer of a military hospital, is on duty on certain nights. We would repeat, however, that the public must second the efforts of the medical profession. The Central Medical War Committee and the corresponding committee for Scotland have made very careful inquiry, and have full details of the medical personnel of every town and district in Great Britain; a study of this material leaves no doubt that the number of medical men who can be called away for the service of the army is now very small. When the best possible is done in the way of redistribution and division of work, it will still be impossible to provide peace-time facilities for obtaining medical advice at any time or place that may happen to suit the patient, and it is the duty of the public to do everything in its power to make it as easy as possible for the remaining members of the medical profession to render to the community the services of which it stands in real need.

## THE FUTURE OF BRITISH SPAS.

In a paper on the future of British spas, read at the Royal Society of Arts on February 7th, Dr. Fortescue Fox said that, though the British spas did not form a large group, it was now possible to indicate more definitely than heretofore the place they should hold amongst the health resorts of Europe. First and foremost were the thermal waters, like those of Bath and Buxton. The waters at Bath were the most remarkable of their kind in Northern Europe. That spa was preferable in the colder months and for thermal and hyperthermal action, and Buxton in the summer, and for subthermal and tonic action. Of sulphur waters there was no group in any country more remarkable than those of Harrogate, and there were many less known sulphur waters in Britain. Of the British salt or saline waters those of Droitwich were too strong for internal use, but furnished a powerful means of surface treatment; weaker but valuable brines were available at Nantwich and Stafford, and salt water of potable strength was found at Woodhall Spa containing chlorides of magnesium and calcium and also iodine. Cheltenham had abundant springs of a mild saline water well adapted to digestive and gouty disorders. He anticipated a revival of the use of chalybeate waters, of which there were many in this country, and also the use of many springs which had recently been comparatively little used. At Malvern all the necessary elements of a first rank spa existed. After recording what had been accomplished during the last two years in the treatment of wounded soldiers at the various spas, he pleaded for a greater number of medical men to study the principles and practice of hydrological medicine, and urged that the time had come to lay the foundation of a British school of hydrology, which should embrace in its scope not only the British islands but the British empire. Sir Thomas Barlow, who presided, pointed out that almost every geological formation occurred between the North-West of Scotland and the South-East of England. The wonderful coast line of our islands also afforded splendid opportunities for recuperation after the use of the mineral waters. The circumstances at the time accentuated the need for greater appreciation of our inheritance. Representatives from Bath, Leamington, and Droitwich took part in the discussion, which was mainly devoted to criticism of the unprogressive methods of spa municipalities, and to some extent of the medical profession, in relation to hydrology and climatology.

## LARREY AND INFECTIOUS JAUNDICE.

A CHARACTERISTIC example of the "peaceful penetration" by which, in the realm of science as in other fields of human enterprise, the German appropriates to himself the achievements of other nations, is afforded by the disease variously known as infectious jaundice, and spirochaetosis icterohaemorrhagica. The Germans call the affection after Weil, who described it in 1836. But M. Chauffard, in a report on a communication by MM. L. Martin and Auguste Pettit, which he presented to the Académie de Médecine on November 7th, 1916, points out that the clinical features of the affection had been described by Budd in 1845, by Ozanam in 1846 and 1849, Monneret in 1859, by Lancereaux and Landouzy in 1832, and by A. Mathieu in 1886, some months before Weil published his paper. Dr. A. F. Hurst says in the *Guy's Hospital Gazette* of January 27th that the association of Weil's name with infectious jaundice is simply due to the superior advertising ability of German physicians. As a matter of fact, a disease of very similar if not identical character was observed by Larrey in Egypt at the beginning of the nineteenth century, and described in his *Mémoires de chirurgie militaire et campagnes* (Paris, 1812).

He said that the fatal symptoms which occurred in a large number of wounded at the battle of Heliopolis and the siege of Cairo in 1800 made the soldiers fear that the enemy's bullets were poisoned. It was not difficult to remove this impression from their minds, but it was less easy to deal with the disease, which presented all the symptoms of a "yellow fever" prevalent in the American War of Secession. The men had scarcely received first aid or undergone operation when they fell into a condition of depression and anxiety. There were slight shiverings all over the body, chiefly in the lower limbs. In the period of invasion the eyes were dull, the conjunctivae yellowish, the face coppery, and the pulse slow and compressible. The patient felt pain in the right hypochondrium and the wounds remained dry or yielded only a reddish serosity. These symptoms were followed by a general feeling of heat, burning thirst, with violent pain in the intestines and the head, accompanied in some cases by delirium. Sometimes epistaxis, followed by copious vomiting and purging, produced a salutary crisis; most often, however, the fever became more intense. Thirst increased, the tongue was dry and as it were burnt up, the eyes were red, the urine scanty and high coloured; sometimes there was complete suppression or retention. The skin took on a yellow tint, the pain in the hypochondrium became more intense, the lower part of the belly was painful and swollen, and the patient was very restless. If the disease ran this course it usually ended in death. From the second, sometimes the first, day the wound became gangrenous. All the fatal symptoms manifested themselves within the first twelve hours following the injury, and the patient died on the first, second, or third day. In some cases the symptoms were milder; insomnia and nervous excitement were replaced by general depression and drowsiness; the constipation and hypochondriac pain by bilious or bloody evacuations. The jaundice was more intense and the disease was prolonged to a fortnight; if it lasted longer a favourable crisis generally occurred ending in recovery. Healthy suppuration took place in the wounds, which quickly healed. The rapidity with which the disease appeared in men with slight wounds who were placed in beds that had been occupied by others who had died convinced Larrey that it was contagious. As Martin and Pettit, who quote Larrey's account, say, while it would be rash to accept his cases of "yellow fever" as examples of icterohaemorrhagic spirochaetosis, it is interesting to note that he described a form of jaundice presenting the outstanding features of contagiousness and haemorrhage.

## PERIODICITY OF MEASLES EPIDEMICS.

DR. JOHN BROWNLEE, in continuation of his study of epidemics by modern statistical methods (several papers on which he has contributed to this JOURNAL), read a paper to the last meeting of the Royal Society on an investigation into the periodicity of measles epidemics in London from 1703 to the present day by the method of the periodogram. The work was carried out in three sections, the first two dealing with the data between 1703 and 1830, and the third with the epoch of registration since 1838. The statistics for the third epoch gave the main periodicity of measles in London for the last seventy-two years as almost exactly ninety-seven weeks. The amplitude of this period was considerable, being 0.4 of the mean number of cases. Periods with amplitudes of about one-half of this were found for one year and for six months. Dr. Brownlee considered it probable that these periods reflected the influence of the weather upon the deaths from measles, though the evidence was not complete. Another important period was that of 114 weeks, but it had not been uniformly present throughout the seventy years in question. In addition to these periods, which seemed all independent, there were two sets of periods grouped on either side of the main period in such a way as could be explained by interference with long waves of prevalence or severity of the disease. There seemed, however, to be no evidence of the existence of these long waves, and the etiology of these symmetrical pairs thus remained obscure. The statistics for the earlier periods showed much more irregular results, and were more difficult to interpret. Comparison was made with some of the large towns in Scotland and on the Continent. Dr. Brownlee's interpretation of the evidence was that these periodicities were the expression of something in the life-history of the organism causing the disease.

## TRANSPORT OF LICE THROUGH THE AIR.

THOUGH the transmission of typhus by lice is generally accepted as proved, yet the disease has been acquired under conditions in which there was no intimate contact with patients and the mode of passage of the sluggish louse from the infected to the healthy individual appeared inapplicable. Schilling,[1] finding that Turkish officers entertained the belief that lice could be borne through the air for a considerable distance, tested this belief by an experiment which consisted of standing in a moderate wind a short distance to leeward of infested men who had stripped. Small lice, measuring about one-twelfth of an inch, appeared on the outer surface of the clothing of the observers, and it was concluded that they had been detached and carried along by the wind. The adult louse is usually anchored to the under surface of the shirt, but young lice are more active and would therefore be the more readily detached. The observation, if confirmed, may help to clear up some difficulties in explaining the spread of typhus fever in certain circumstances.

## THE PROPHYLAXIS OF VENEREAL DISEASES.

MR. HUGH ELLIOT'S letter (p. 209) will be read with interest as the expression of the views of a thoughtful layman on a matter with which the medical profession, as he admits, is intimately concerned; but we would like at once to take exception to one of the grounds—perhaps the chief ground—on which he rests his conclusion. He alleges that there is no department of science in which knowledge is so much closed to the public as in the sphere of medicine, and that every kind of obstacle is placed in the way of the layman who desires to study medical science. This is an accusation very frequently made, and as Mr. Elliot has now made it in our columns we should like him to tell us where he thinks the obstacles lie. It is quite true that a long course of study is necessary to enable a man to learn enough of the sciences upon which medicine rests to apply them in practice, and to avoid the fallacies with which prophylaxis and therapeutics are beset. It is true also that the State requires candidates for a degree or licence qualifying for admission to the *Medical Register* to show that they have studied diligently certain prescribed subjects for the prescribed periods. Finally, it is also true that the State does not permit certain appointments to be held, nor certificates of the cause of death to be given, by persons not so registered. But this is all the State does, and it certainly does not amount to conferring upon the medical profession the exclusive right of knowledge in medicine. It is open to any one to study medical writings, and from them to make himself acquainted with, for instance, any methods of prophylaxis—just as much open as it has been for Mr. Elliot to make himself an authority in biology. Anybody, for instance, of any scientific training could easily understand and appreciate the value of Metchnikoff's papers in the *Bulletin* of the Academy of Medicine in Paris,[2] and in the *Annales de l'Institut Pasteur* in

[1] *Muench. med. Woch.*, No. 32. 1916, p. 1176

[2] May 8th, 1906, quoted BRITISH MEDICAL JOURNAL, 1906, i, p. 1183.

[3] October, 1907, p. 753, quoted BRITISH MEDICAL JOURNAL, 1907, ii, p. 1846.

which he described and justified the method of prophylaxis he and Roux had devised. The rest of Mr. Elliot's letter raises an interesting point. It is one upon which two opinions may be held, and as to which a medical man conscientiously desirous of doing his duty towards the public may hesitate. We do not think that any medical man would be justified in refusing to give his best advice to a person who applied to him after known exposure to the risk of infection. It is a rather different thing to say that there is an equal obligation on a medical man to tell an inquirer how he may expose himself to infection without risk, or with greatly diminished risk, of contracting it. This, we submit, is the question which is most exercising the medical profession at the present time. Some light is thrown on it by the discussion published at p. 196.

## THE PLACENTA AS A GALACTAGOGUE.

IN the *Gazzetta Italiana delle Levatrici* for July, 1916, Teresa Bianchini reports five cases of placentophagy which came under her notice in the Italian Marches. The afterbirth was taken to increase the secretion of milk, which in all the women had failed without obvious cause after previous confinements. The placenta was cut up and washed, cooked in salt water, except in one case, in which broth was used for the purpose, and eaten mostly in large pieces. Except for the cooking the method of administration was practically that naturally followed by some animals—for instance, the bitch, which swallows its own afterbirth immediately after expulsion. The treatment is said to have been successful after other methods of stimulating the milk secretion had failed. The placenta was used in antiquity and in the Middle Ages as a remedy in difficult labour, and in our own day the human afterbirth and that of the sow has been used in extracts given in pills and other vehicles to stimulate the mammary function. In all parts of the world there are many places where the women still hold by the old tradition. In Morocco it is believed that eating the placenta prevents barrenness and hastens delivery. Preparations of the placenta hold a considerable place in Chinese therapeutics. It is regarded as the best remedy for chlorosis and as useful in cases of anaemia following parturition. It is thought to be most efficacious when taken fresh, but is also given dried and in pills. Madame Louise Toussaint, a French midwife, quoted by Cabanès in his *Remèdes d'autrefois* (Paris, 1905), speaking of women in labour, says, "Notwithstanding the disgusted protests which will come to the lips of many of you, O accoucheurs and midwives, in reading me, give them, believe me, some fragments of their own placenta and you will tell me what happens. You will see how much you will in this way promote rapid recovery and with what abundance and rapidity the milk will come on. Do not forget that even in non-pregnant women and in virgins the milk secretion may be made to appear by simple placental feeding." The same lady affirms, from her own experience, that there is nothing like the ingestion of sheep's placenta, dried and then triturated with powdered sugar, for making the milk come abundantly in women who had none, and also for doubling the daily output in nurses. Cabanès tells us that at the fourth French Congress of Internal Medicine, held at Montpellier in April, 1898, Dr. Iscovesco presented a communication on the therapeutic action of the placenta illustrated by more than a hundred cases. He used sheep's placenta in tablets, each representing 0.25 gram of the fresh substance; the daily dose never exceeded 1.50 grams. This seemed to have a favourable effect on the secretion of milk. The treatment was also said to have brought about remarkable improvement in chronic metritis with hypertrophy of the uterus and concomitant catarrh even when the appendages were diseased, and in cases of abnormal involution of the womb after delivery.

## PITFALLS IN DARK-GROUND ILLUMINATION.

THE great value of dark-ground illumination for the detection of such organisms as *Sp. pallida* and *Sp. icterohaemorrhagiae* has been universally recognized, and the method is certain to be even more widely applied in attempts to solve the numerous problems of infections of unknown origin which the war has brought into prominence. The fallacies which beset the examination of blood for organisms by dark-ground illumination are reiterated by Knack,[1] who refers to the excellent work on this subject by Aynaud and Jeantet in Gilbert and Weinberg's *Traité du sang* (Paris, 1913). He emphasizes anew the fact that spirochaete-like bodies may appear as artefacts in preparations of normal blood, in which they are found either free or attached at one end to red blood corpuscles.

## SCIENCE IN THE SCHOOL.

UNDER the title *Science in the School*,[2] Sir Clifford Allbutt has reprinted the three letters he published in the Educational Supplement to the *Times* last autumn. We gave some account of the main line of his argument in a leading article published on October 14th, 1916, p. 529. He speaks of the value of the letters as transitory, but they caught the attention of many readers, and we believe that the principle they contain—that the kinaesthetic method of education is valuable not only as a method, but as, in a way, the realization of the boy in performance—is one which will not be forgotten. They contain another point, which may best be explained by some sentences from the last paragraph of his third letter. Let us, he says, jealously "vindicate the freedom of the school, which is not only in peril, but even in distress. All examinations, including leaving and scholarship examinations, should be conducted by the school, if with the countenance of university assessors. Big examinations should be broken up into more frequent revisions. Our scholarship system, with its prize boy and specialized or half-baked boy products, needs radical reform. With careful leaving certificates all compulsory subjects should be discarded by the universities. Why, indeed, should not any righte us man repair to a university if he thinks he can get good out of it? Why bar the door?"

THE Council of the Royal Society of Medicine extends a cordial invitation to the commissioned officers of the Naval and Military Medical Services, when in London, to make free use of the society's rooms (which include writing, smoking, tea, conference, and dressing rooms), and to use the library for purposes of reading and reference. They are further welcome to attend any of the meetings held for discussions and reading of papers, which are announced in the medical journals each week. The society's house (1, Wimpole Street, Cavendish Square, W.) is open from 11 to 6.30.

[1] *Cent. f. Bakt.*, I, Orig., Bd. 78, 1916, p. 158.
[2] *Science in the School.* By Sir Clifford Allbutt, K.C.B. 1917. Cambridge: W. Heffer and Sons, Ltd. (6d. net.)

IN a small book, entitled *Suffering Relieved*, the Society for the Propagation of the Gospel in Foreign Parts has brought together from its magazines a number of encouraging reports of medical mission work all the world over. Good work is being done by the society's missioners in India, Malaya, China, Corea, South Africa, and many other distant parts of the world.

DR. ISIDORO RODRIGUEZ, of Montevideo, who died recently, was a graduate of the medical faculty of Paris. He had been working since last year in the hospital of the Franciscans at Pau, and had gone home for a holiday, when he met his death by the accidental discharge of an automatic revolver which fell out of his pocket. He lived eighteen hours after the injury, settled his affairs with perfect calmness of mind, and drank a toast to the success of France. He left £260 to the hospital at Pau in which he had worked.

# THE WAR.

## TREATMENT OF PARALYSIS AND STIFF JOINTS.

In a paper on the treatment of paralysis and stiff joints resulting from gunshot wounds contributed to Bruns's *Kriegschirurgische Hefte* (*Beil. z. klin. Chir.*) Gustav Fischer (Heft xxvi) shows that he has assimilated much of the work of British and American orthopaedic surgeons as applied to war surgery. He labels the operations with the names of various German surgeons, but this characteristic weakness rather adds to the value of his confirmatory evidence.

Paralyses, he says, are either neurogenous or myogenous in origin, and of the former the great majority are caused by wounds of the peripheral nerves. The ideal treatment in these cases is to remove the cause—to loosen adhesions or to unite the partially or completely severed nerve. An operation of this kind can be undertaken only when the wound is free from infection. On this account it can only rarely be performed in recent wounds, a matter for regret since the cicatrization of the nerve ends necessitates the removal of a larger part of the nerve in the later operation. For the slighter nerve injuries the author speaks favourably of Stoffel's operation of endoneural neurolysis; where loss of substance has to be made good he recommends Edinger's tubes, which consist of portions of the arteries of the calf, hardened in formalin and filled with agar, which forms a suitable medium for the outgrowing nerve fibrils. Fischer admits that the value of the method is still a matter of discussion, but of the six cases in which he made use of the tubes complete and rapid re-establishment of nervous conduction resulted in five. As an example may be mentioned a case of median and ulnar paralysis following bullet wound of the right axilla. Five months after the injury the median nerve was found to be completely severed; its ends were bulbous and embedded in cicatricial tissue. After freeing the nerve from adhesions and removing the ends, the defect, which measured 6 cm., was bridged by an Edinger's tube. On the ulnar nerve, which was embedded in cicatricial tissue, neurolysis was performed. Sensation returned in the median area after fourteen days, and in four weeks there was marked improvement in movement, with commencing electrical irritability of the muscles on nerve stimulation. Of the preparatory treatment and after-treatment, which both are of importance, Fischer says of the former that a favourable position of the limb should be chosen as soon as possible after the injury; as regards the latter, he advises the use of electricity, massage, baths, and apparatus for ensuring due exercise of the muscles.

Where an operation on the nerve has failed, or its result is incomplete, and in cases with much damage to the muscles, a plastic operation on the tendons, especially the implantation of tendons, is often attended with very beneficial results. The tendons may be united laterally or implanted directly on the bone. Detachment of the tendon of a healthy muscle from its insertion and anastomosis to the tendon of the paralysed muscle is termed the "total descending" method, whereas splitting the tendon and implanting one half only is called the "partial descending" method; detachment of the tendon of the paralysed muscle and implantation on to the healthy muscle is spoken of as the "ascending" method. To obtain good results from these methods it is important, Fischer thinks, to separate the whole muscle high up from its surroundings, especially if the muscle passes round the bone from one side of the limb to another. It is equally important, in the partial method, that the tendon be split up well into the fleshy belly of the muscle, and, in all methods, that the tendons be united somewhat short, in order to allow for subsequent stretching which always occurs. The stretching is less marked when the tendon is transplanted directly into bone.

The applicability of operations of this kind, which have hitherto been limited because they could only be used where the sound and paralysed muscles lie near together, has been greatly enlarged by the plastic treatment of the fasciae, in which not only is the exchange of tendons carried out within the fascial sheath, but the tendon is carried from one sheath into the other. This is effected through an incision in the sheath, which, however, is very liable to result in adhesions, which may be avoided by forming a flap of fascia by means of two longitudinal incisions in the muscle septum, rolling the edges outwards and uniting them by suture, thus producing a smooth pillar having a natural surface, over which the tendon can glide without any tendency to the formation of adhesions.

As an example of treatment on these lines may be mentioned a case of bullet wound of the forearm with extensor paralysis of the thumb and index finger. The extensor tendon of the index was united by operation to that of the middle finger; the tendon of an extensor of the hand was implanted into the tendons of the extensor pollicis longus and brevis, and abductor pollicis. A serviceable hand resulted. Fischer has learnt also that those cases of paralysis in which functional groups of muscles are involved, as in pes equino-varus from peroneal paralysis, are also amenable to treatment, though such operations as those mentioned above are of no service. The measures to be adopted are the shortening of the tendons of the paralysed muscles and their attachment to fasciae and to the periosteum of adjacent bones, with the object of bringing the foot into a normal position. Where defective mobility is due to the embedding of a tendon in cicatricial tissue, he found it necessary not merely to separate the tendon from the scar tissue, but to provide against the recurrence of adhesions. With this object Spitzy, after freeing the tendon, surrounds it with semisolid sterile lard applied with a syringe. The skin is then carefully sutured. The lard takes several weeks to become absorbed, and from the second day onwards movement of the part should be systematically carried out. Rehn recommends that the tendon be surrounded with a layer of adiposo tissue, and Biesalski finds particularly suitable for this purpose the areolar tissue above the inner malleoli, upon which the tendons glide without the intervention of a sheath.

Fischer insists on the importance of prophylaxis in dealing with stiff joint. With the endeavour to preserve the movements of the joint the precaution should be taken, in every case of joint wound, to place the parts in such position as will interfere as little as possible with the usefulness of the limb should ankylosis result. The inconsiderate use of the plaster bandage often does harm. In wounds of the arm, the hand and fingers may be found stiff solely because provision has not been made for movements. Nor is complete immobilization to be justified because there is a suppurating wound near the joint, for movements in the joint are not contraindicated unless recent severe infection exists. Plaster bandages should be as small as possible, and generally it is possible to replace them early by splints, which allow movements and inspection of the wound.

In the operative treatment of contractures caused by the cicatrization of muscles, Fischer thinks it best not to interfere with the muscle itself but to lengthen the tendon by "step-form freshening," followed by mechanical treatment.

For cicatrices of the skin and fasciae the injection of fibrolysin or cholin chloride may be used in the first instance. Should these fail the scar should be excised and a skin flap brought into the wound

In fibrous ankylosis of the joints involving the capsule only Fischer advises massage, electricity, hot air, baths, and active and passive movements. He mentions the numerous measures devised for deeper ankylosis, varying with the joint affected, and having for their object the stretching of the fibrous bands, and, in suitable cases, a careful *brisement forcé* performed under anaesthesia. And here Fischer refers to the use of simple improvised apparatus, which, if intelligently devised and applied, give satisfactory results. The value of the complicated apparatus of the present day is easily overestimated.

In dealing with bony ankylosis resulting from comminution, Fischer frees the ends of the bones by removing the intervening tissue, thus forming a wide space between them. Into this he inserts a double flap of fibro-fatty tissue, without removing the capsule and ligaments of the joint. In this way he has obtained a good movable joint. He has realized, however, that the nature of the patient's calling should be considered, for in some cases a stiff joint in a good position would be a preferable result.

## WOUNDS OF THE THORAX.

Dr. Widenmann, writing, in Heft xxv of the same special publication, on wounds opening the pleura or involving the lung, refers to the altered views now held regarding these injuries. Earlier statistics based on cases observed in hospitals behind the war zone and concerning injuries produced mostly by small-calibre bullets gave too favourable a prognosis, when applied, as was sometimes done by German surgeons, to chest wounds generally. He has found that the nearer the front the cases were observed the more unfavourable was the prognosis, and that the prognosis of bullet wounds is essentially different from that of shell wounds. In the 217 cases that came under his observation some of the deaths were due to multiple injuries; putting these aside, he reckons the mortality from bullet wounds at 6.5 per cent.; and, since the graver cases only were retained in his lazarett, he concludes that, if the slighter cases be included in the computation, the prognosis must be extremely favourable. It is not so with shell wounds; he places the mortality of these at 20.99 per cent. In them the projectile is more frequently retained and the danger of severe infection is greater. In diagnosis too much reliance should not, he thinks, be placed on the absence of haemoptysis as an indication that the lung is intact. The absence of haemothorax is of much greater importance. It was absent in two only of his cases of undoubted perforating chest wounds; and he regards it as the most important sign of injury of the lung. On the other hand, it may follow injuries to the chest wall in which the lung has escaped. Such injuries are, however, frequently associated with contusion or rupture of the lung itself, and being especially liable to severe infection, empyema is likely also to be present. He found that tangential wounds of the chest wall, with or without fracture of the ribs, were generally accompanied by contusion of the lung, evidenced by temporary haemoptysis, slight dullness, bronchial breathing, moist râles and, if haemothorax were present, diminished vocal fremitus.

Pneumothorax, which he recognized to be one of the most important evidences of perforating wound, the costal pleura alone or both layers being involved, might be found to occur also in tangential wounds, without perforation, the costal pleura alone being involved. He thinks it probable that this frequently happens on the actual field of battle, but he found even farther from the front it was considerable, amounting in his own cases to 31.6 per cent. He found the diagnosis of closed pneumothorax often attended with much difficulty, varying with the seat and degree of tension. All the recognized clinical signs might be absent, and the most valuable aid in its diagnosis was to be got from radiography, which was altogether superior in reliability to auscultation and percussion. Urgent symptoms in cases of closed unilateral pneumothorax arose only when great pressure was present; cases of perforating wounds, with pneumothorax over a haemorrhagic effusion, were frequently met with showing no appreciable subjective or objective alteration in the respiration.

In the treatment of recent uncomplicated bullet wounds, an aseptic dressing, rest, elevated position, and morphine, were unanimously adopted. As to the treatment of haemothorax there was less agreement. The older view that interference should be avoided, appeared to be yielding to removal of the effused blood, unless the quantity were small, in order to avoid the formation of adhesions and consequent retraction of the chest. Where rapid absorption did not take place, Widenmann, after the eighth day, resorted to paracentesis, which he thought promoted absorption; haemorrhage was never found to recur. The practice has, he thinks, the additional advantage of allowing a bacteriological control, by which means the occurrence of empyema could be detected at its onset. An injection of morphine was given before each paracentesis in order to restrain the obstinate cough often present. He recommends the employment of respiratory exercises to promote absorption of the effusion.

The treatment of empyema or pyopneumothorax varied according to the mode of development of these complications. In presence of secondary infection of a haemothorax or closed haemopneumothorax the usual method of rib resection was adopted. It should, Widenmann thinks, be performed as soon as paracentesis discloses the presence of pus or pyogenic organisms. In presence of an open pneumothorax, with empyema or pulmonary abscess, connected with an infected wound of the chest wall, good drainage must be established through the wound. It was often found that the wound in the pleura was at a distance from the external wound and infected splinters of bone might lie in the track; in such cases extensive and deep incisions might be necessary, and in the planning of these radiography was of great service. If an empyema was localized, resection over it was found to suffice; but if it involved the whole sac, resection at the lowest point, with the insertion of a large tube reaching to the top of the cavity, was resorted to. Recent open pneumothorax and rupture of the lung were treated by suture of the lung and fixation to the thorax; such cases, which must necessarily be treated very early, did not come under Widenmann's observation.

The deleterious effects of transport over bad roads in cases of chest wound were generally recognized; it was found that haemorrhage, dyspnoea, cyanosis, heart failure, exhaustion from cough, fever, pleurisy, might arise from this cause. Quite otherwise was it with the railway transport of cases which had been retained in hospital for the first eight or ten days, and had shown no signs of complications.

## CASUALTIES IN THE MEDICAL SERVICES.

### ARMY.

*Died on Service.*

LIEUTENANT-COLONEL R. C. MCLEOD, C.A.M.C.

Lieutenant-Colonel Roderick Campbell McLeod of the Canadian Army Medical Corps, whose death was announced in the BRITISH MEDICAL JOURNAL of January 13th, died at Bramshott Camp on January 7th, after an illness lasting only twenty-four hours, of anthrax, supposed to have been communicated through an infected shaving brush. He was a Nova Scotian of Scottish extraction, and before the war was in practice in Cape Breton Island. In December, 1915, he joined the Canadian A.M.C. at Halifax, and was appointed to the command of No. 9 Stationary Hospital of the Canadian Expeditionary Force, a unit given by the Roman Catholic University of St. Francis Xavier in Nova Scotia.

ASSISTANT SURGEON F. K. HOLMES, I.S.M.D.

The casualty list published on January 29th reported the death on service of Assistant Surgeon Frederick Kendrick Holmes of the Indian Subordinate Medical Department. He was born on December 19th, 1878, attained warrant rank on February 17th, 1900, and was promoted to second class assistant surgeon on February 17th, 1912. Before the war he was serving in civil employ in the Central Provinces as civil surgeon of the district of Buldana.

*Wounded.*

Captain C. H. Lilley, R.A.M.C. (temporary).
Lieutenant Balkrishna, I.M.S.

*Prisoners of War.*

A casualty list published on January 29th gave the names of a number of officers of the Indian departments taken prisoners at Kut last April, whose names apparently had not been published before. Among them were the following assistant surgeons of the I.S.M.D.: J. W. Newbold, W. A. de Souza, S. Duckworth, C. B. Holt, D. I. Mackay, A. J. Hixon, R. P. Lewis.

DEATHS AMONG SONS OF MEDICAL MEN.

Brannigan, E. E., Second Lieutenant West Yorks Regiment, son of Major J. H. Brannigan, R.A.M.C.(ret.), killed on September 3rd, 1916. He was born in 1876, educated at St. Bede's School, Manchester, and at Munich, and, after spending a short time in a broker's office at Liverpool, went out to the Transvaal. He served in Bethune's Mounted Infantry throughout the South African war, receiving both medals, with eight clasps. During the present war he served through the campaign in German South-West Africa, and after its conclusion came to Europe, and got a commission in the West Yorks Regiment.

McLintock, Arnold, Lieutenant Duke of Wellington's Regiment, second son of the late Dr. James McLintock, F.R.S.Ed., of the Scottish Local Government Board, reported missing on September 3rd, 1916, now presumed killed on that date. He enlisted at the beginning of the war, got a commission on October 10th, 1914, went to the front in April, 1915, and had twice been mentioned in dispatches. He was a partner in the Ramsden Mill Company, Linthwaite.

McNeill, William Alexander, Lieutenant R.N.R., third surviving son of the Rev. A. McNeill, M.D., of Edinburgh, formerly of Holm, Orkney, lost in H.M.S. *Laurentic*, January 25th.

Moir, John Elliot, Major Indian Cavalry, youngest son of the late Surgeon-Major Robert Moir, I.M.S., of St. Andrews, died on January 26th, aged 40. He was born on August 13th, 1876, got his first commission on January 20th, 1897, joined the Indian army on March 26th, 1898, became captain on January 20th, 1906, and major on January 20th, 1915. He was a squadron commander in the 10th Duke of Cambridge's Own Lancers (Hodson's Horse).

CORRECTION.

In recording the death on service of Captain Eugene John McSwiney last week it should have been stated that he died in the Military Hospital, Devonport, and was buried at his home in county Cork.

## HONOURS.

THE following awards have been granted to medical officers for services rendered in connexion with the war:

*To be C.B.*

Colonel (temporary Surgeon-General) George Douglas Hunter, C.M.G., D.S.O., A.M.S.

*To be Companions of the Distinguished Service Order.*

Lieutenant-Colonels (temporary Colonels) Francis Ernest Gunter, M.B., R.A.M.C., Charles Arthur Johnston, C.I.E., M.B., I.M.S., Gerard William Tate, M.B., R.A.M.C.

Lieutenant-Colonels John McKie, M.B., R.A.M.C., Henry Alford Moffat, S.A.M.C., William Booth Skinner, M.B., S.A.M.C., Reginald George Turner, F.R.C.S., I.M.S., John Herbert Whitehead, S.A.M.C.

Temporary Lieutenant-Colonel Charles Herold Muller, M.B., S.A.M.C.

Major (temporary Lieutenant-Colonel) Wallace Benson, M.B., R.A.M.C.

Captain Gerald Joseph Keane, M.D., R.A.M.C.

*Awarded the Military Cross.*

Captains Harry Fayle, M.D., S.A.M.C., Robert Siggins Kennedy, M.B., I.M.S., Conyngham Vernon Thornton, M.B., R.A.M.C.

*Awarded the Second Class of the Indian Order of Merit.*

Sub-Assistant Surgeons Hukam Singh, I.S.M.D. (attached K.A. Rifles), and Mula Singh, I.S.M.D.

*Awarded the Indian Distinguished Service Medal.*

Sub-Assistant Surgeon Abdul Ghafur, I.S.M.D., and Saiyid Muhammed Ejaz, I.S.M.D.

MENTIONED IN DISPATCHES.

The name of Major W. C. Croly, R.A.M.C., has been added to the list of officers mentioned in General Sir John Nixon's dispatch regarding the operations in Mesopotamia, published in the *London Gazette* of April 5th, 1916.

In the Mediterranean dispatches published in the *London Gazette* of July 13th, 1916, for Major W. Jones read Major W. W. Jones, M.D., R.A.M.C.(T.F.); and for Captain R. Robeson read Captain R. Robison, R.A.M.C.(T.F.).

In the British Army in France dispatches published in the *London Gazette* of January 4th, 1917, under Canadian Army Medical Corps, for Major E. H. Blaylock read Quartermaster and Hon. Major H. W. Blaylock.

## NOTES.

ARTIFICIAL LIMBS AND SURGICAL APPLIANCES FOR INVALIDED SOLDIERS.

AN Army Council Instruction of January 24th, 1917 (No. 144), directs that soldiers who have been invalided from the army for disabilities sustained during the present war and who in consequence require artificial limbs, artificial eyes, surgical boots, trusses, splints, elastic stockings, or other surgical appliance, or the repair of such appliances already supplied to them, are to report at the nearest military hospital. The officer in charge will carefully investigate the case, and if the supply or repair can be carried out locally and does not involve any considerable expense, he will arrange to have it done and will forward a certificate to that effect to the Secretary, Royal Hospital, Chelsea. If the appliance cannot be supplied or repaired locally, he will forward a report of the case, giving a full description of what is required, to the Secretary of the Royal Hospital, Chelsea, who will make arrangements for the supply or repair of the appliance and for it to be forwarded to the officer in charge of the hospital. That officer will then arrange for the attendance of the soldier in order to ascertain that the appliance is in every way satisfactory. Where a man requires an artificial limb refitted the secretary of the Royal Hospital, Chelsea, will, when necessary, arrange for the man's attendance at a limb-fitting hospital. The travelling expenses of the soldier incurred for attendance at a military hospital will be defrayed.

# England and Wales.

INFANT WELFARE AND MATERNITY CENTRES.

A DEPUTATION from the Association of Infant Welfare and Maternity Centres, representing the majority of the eight hundred existing centres, was received by the President of the Local Government Board on January 31st. It urged the extension of the present Government grant of 50 per cent. of the approved expenditure incurred by the welfare centres, to cover the cost of supplying milk for children under school age, and nourishment for expectant and nursing mothers in necessitous cases. Dr. Eric Pritchard pointed out the difficulty mothers found in providing, especially out of separation allowances, the necessary 1½ pints of milk a day for babies that had to be bottle-fed, and the still greater difficulty in affording as much milk as was really needed for children from 9 months to 3 years; a small quantity of sugar was vitally necessary for children under 18 months of age, but was now difficult to get. Dr. Flora Shepherd referred to the importance of providing nursing and expectant mothers with adquate nourishment, and stated that her experience of the provision of suitable meals at centres for mothers (supplied at a cheap rate where prescribed by the doctor) was that the number of cases in which the babies were breast-fed was thus largely increased. In the course of a sympathetic reply, Lord Rhondda foreshadowed early legislation, as a war measure, with a view to increasing the powers of the local authorities in helping the welfare of infants and of expectant and nursing mothers. He referred to the recommendations of the Food Prices Committee in favour of the supply of milk for infants and food for mothers as suggested by the deputation.

AFTER-CARE OF TUBERCULOUS PERSONS.

An informal conference between representatives of various Government departments and public bodies was held, under the chairmanship of Lord Balfour of Burleigh, on January 30th, when a proposal by the Medical Adviser to the Insurance Committee for the County of London for a national scheme for the after-care and employment of tuberculous persons was discussed. A small committee was nominated to consider what further action should be taken in the matter.

# Scotland.

THE annual report of the Scottish Burial Reform and Cremation Society states that during the last twelve months 71 cremations were carried out in Glasgow, as compared with 54 in the previous year. The number of cremations since the opening of the crematorium is 654.

THE FALLING BIRTH-RATE IN EDINBURGH.

In speaking at the annual meeting of the Edinburgh Infants' Home last week Dr. Maxwell Williamson, M.O.H., said that the birth-rate of Edinburgh was decreasing to an alarming degree; there were 5,700 births in Edinburgh in 1913, and only 5,300 in 1915. The death-rate was 16.1 per 1,000, and the general uncorrected birth-rate 16.3, so that the population was stationary. The illegitimate birth-rate had risen from 7.6 in 1913 to 8.4 in 1915; this compared with 6.9, the rate for the whole of Scotland. It must be remembered that illegitimate children had a much poorer prospect of life than legitimate. The Rev. Professor W. P. Paterson, in proposing the adoption of the annual report, said that a special commission of the Church of Scotland had been appointed to deal with the question of unsanctioned relations between the sexes.

GLASGOW SICK CHILDREN'S HOSPITAL.

The annual report of the Royal Hospital for Sick Children, Glasgow, states that in the four wards requisitioned by the military authorities 686 sick and wounded officers had been treated during the year. The loss of these four wards had caused an unprecedented and regrettable pressure on the other wards. The number of children treated in the hospital—2,249 (694 medical and 1,555 surgical)—was nearly the same as in the previous year,

but the increase in the number of very small children was noteworthy. The medical and nursing staff absent on naval and military service included eight physicians, five surgeons, and four specialists. In addition four physicians, four surgeons, and two specialists were engaged on military duty in Glasgow, which interfered with their work at the hospital and dispensary. If the depletion of the staff were carried further, some departments of work in the hospital and dispensary would have to be closed.

### SCOTTISH POOR LAW MEDICAL OFFICERS' ASSOCIATION.

The report presented to the annual meeting of the Scottish Poor Law Medical Officers' Association in Glasgow on February 2nd, stated that the committee had found that the Medical Service (Highlands and Islands) Board was not carrying out what the committee had believed to be statutory requirements as to the provision of a suitable dwelling-house, rent free, for necessary outlays in connexion with the working of the district, and for a minimum income of £300 a year. The committee had been informed by the secretary of the Board that a guaranteed income had been granted in certain districts, and that no medical men could be found for certain others for which the Board was willing to give a guarantee. The result of the correspondence was to convince the committee that it would be necessary to return to its old practice of warning applicants, so that they might not go blindfold into a district unsatisfactory as regards income, area, and facilities for working. On the advice of the secretary, a member had successfully appealed to the Local Government Board with regard to vexatious difficulties placed in his way by a parish council in respect to the payment for attendance on paupers boarded out in another parish. The financial statement showed a satisfactory balance. The report was adopted unanimously and the office-bearers were re-elected. The secretary is Dr. W. L. Muir, 1, Seton Terrace, East Glasgow.

# Ireland.

THE election of a parliamentary representative of the University of Dublin resulted in the return of Mr. Arthur Samuels, K.C., who received 1,481 votes. Sir Robert H. Woods, F.R.C.S.I., received 679 votes.

The Dunshaughlin guardians have granted their medical officers a war bonus of £25 each for the year 1916, and an increase of salary of 10s. a week each from January 1st, 1917, for the duration of the war.

The Local Government Board has refused to sanction the appointment, temporarily or permanently, of Dr. T. C. MacGowan as medical officer of Brideswell Dispensary, on the ground that he is of military age; the Athlone guardians have again requested the Board to sanction the appointment or to accept the responsibility of leaving the dispensary district without a doctor.

### COLLEGE OF NURSING.

A meeting to consider the proposals for the establishment of the Royal British College of Nursing was held at the Royal College of Physicians, Dublin, on February 3rd, under the chairmanship of Dr. Joseph O'Carroll, president of the college. The nature of the proposals, which was fully explained in the JOURNAL of January 27th, p. 133, was set forth by Miss R. Cox Davies, matron of the Royal Free Hospital, London. Miss Rundle, secretary of the college, said that it was a mistake to suppose that Irish nurses would be required to go to London for lectures and examinations. The scheme, she said, proposed that the Irish nurses would be educated in Ireland and examined in Ireland by examiners nominated by the Irish Board, with the co-operation of the council; this plan had already been approved in Scotland. Dr. O'Carroll took exception to the name of the college on the ground that it did not include Ireland. He added that Ireland must be represented on the council by at least one sixth of the total number of representatives. The meeting concluded by votes of thanks to Miss Cox Davies and Miss Rundle, and to Dr. O'Carroll and the Colleges of Physicians and Surgeons for sympathy they had always shown in movements for the benefit of nurses.

### GRADED MEDICAL SALARIES.

The Armagh board of guardians have adopted a graded scale of salaries for their medical officers. The scale was made retrospective in the case of existing officers, and the minimum or initial salary was fixed in each case at the old salary. The scale was fixed as follows: For the medical officers of Blackwatertown, Loughgall, Markethill, Richill, and Tynan dispensary districts, and for the workhouse, an initial salary of £120 a year, with quinquennial increments of £5 until a maximum salary of £140 per annum is reached. In Kealy dispensary district the maximum salary was fixed at £150 per annum. For the Armagh dispensary district the initial salary was fixed at £150 per annum, with two quinquennial increments until the maximum of £160 was reached.

### THE DUBLIN RAINFALL OF 1916.

Sir John Moore has been good enough to send us a note on the preliminary report on the rainfall of the British Isles in 1916, contributed to the *Times* by Mr. Hugh Robert Mill, D.Sc., Director of the British Rainfall Organization, as follows:

He says the report reflects great credit on the energy of Dr. Mill's staff, and on the enthusiasm of his corps of observers—now numbering 5,000—all over the British Isles. In almost all parts of Great Britain and throughout the whole of Ireland the rainfall of the past year was above average. Dr. Mill selects thirty-three rainfall returns in Ireland for discussion in his report. He shows that for the fifth year in succession the general rainfall of Ireland has been above the average, but 1916 was by far the wettest of the five years. The excess was scarcely appreciable at Lota Lodge, Glanmire, co. Cork. At that station the yearly average is 44.08 in.; in 1916 it was 44.28 in. Dr. Mill counts this as 100 per cent. of the average. In Dublin the excess was 39 per cent. The area over which the excess was 30 per cent. and upwards, stretched inland from Dublin Bay. Dr. Mill points out that this is the part of the country with the lowest average fall, about 30 in., so that its wetness in 1916 accentuates the uniformity in the distribution of rainfall which always distinguishes Ireland from Great Britain.

The rainfall in Dublin was 38.609 in., or as much as 10.609 in. over the average annual measurement of the thirty-five years 1871–1905 inclusive—namely, 28.000 in.

The rainfall in 1887 was very exceptionally small—16.601 in. In 1870 only 20.859 in. fell; in 1884 the measurement was 20.467 in.; in 1883 it was 20.493 in.

The scanty rainfall in 1887 was in marked contrast to the abundant downpour in 1886, when 32.966 in.—or as nearly as possible double the fall of 1887—fell on 220 days. In 1900 the rainfall was 34.338 in., or 6.338 in. in excess of the average for the thirty-five years 1871–1905. In 1910, also, the rainfall was very large, 35.439 in. on 219 days. Only once since these records commenced has the rainfall in Dublin exceeded that of 1910—namely, in 1872, when 35.566 in. fell on 238 days.

Seeking for a possible cause of the very unusual downpour of 1916, the inquirer naturally thinks of the widespread great war. In the closing paragraph of his most interesting report, Dr. Mill answers this "inevitable question" with a somewhat dogmatic "No." "The data," he writes, "do not justify us in attributing the wetness of the past three years to the war." He bases this opinion on two facts: "For amount of rain, 1912 was much more remarkable; while, as to distribution of rain in the south east of England, where, if anywhere, the effect of gunfire on rainfall should be clearest, the same general type of distribution has prevailed since 1909, and the years 1910, 1912, 1915, and 1916 are remarkable for their similarity, and must I think, owe that similarity to similar conditions in the flow of the great rain-bearing air currents over the Atlantic."

Sir John Moore agrees with Dr. Mill that "gun-fire" *per se* has probably had little to say to the wetness of 1915 and 1916. He is not so sure that the vast quantity of dust thrown into the air by the myriad explosion of shells and bombs has not had a causal relation to the extraordinary prevalence of cloud and consequent abundant precipitation during the past two or three years. It is to be remembered, as proved experimentally by Mr. John Aitken of Falkirk, that each particle of dust in the atmosphere acts as a condenser of aqueous vapour, and rivals Zeus as a cloud-compeller.

# Canada.

### ANTERIOR POLIOMYELITIS IN MONTREAL.

AT a meeting of the Montreal Medico-Chirurgical Society on October 20th, 1916, when papers on anterior poliomyelitis were read by Dr. Blackader, acting Dean of the Medical Faculty of McGill University, Dr. Charles F. Martin, and Lieutenant-Colonel A. MacKenzie Forbes, C.A.M.C., about 100 physicians were in attendance at the meeting, who together reported that they had seen from 60 to 70 cases of infantile paralysis during the previous three weeks. The Montreal epidemic first made its appearance in August, and, though it did not attain to any great proportions, caused a good deal of anxiety while it lasted. The cases did not appear in the poorer localities of the city, but in the best residential parts of Montreal. They occurred in groups, but in only one instance did two cases occur in the same family. The danger of infection at public gatherings was pointed out, and the following instance related: Two young boys, who had not been together for some time previously, went to a picture show together; a week later both developed infantile paralysis, and died within forty-eight hours. They did not live in the same district.

During the months of August and September 25 patients suffering from the disease, of whom 23 were under 5 years of age, were admitted to the Alexandra (Isolation) Hospital. Of these 5 died, death in every case being the result, directly or indirectly, of paralysis of the respiratory muscles. There was a history of vomiting at onset of illness in 7 cases, convulsions occurred in 2 cases, and profuse sweating, which continued for a number of days, in several instances. In one case there was continuous fever for about three weeks; another patient finally died of hyperpyrexia. There was paralysis of one extremity in 9 cases and of more than one extremity in 16 cases. A marked feature was the occurrence of pain upon movement of a limb. Dr. Boucher, the medical officer of health of Montreal, stated that during the year 67 cases of anterior poliomyelitis had been reported to the Health Department—10 in August, 21 in September, and 28 in October. He thought that hospital treatment was the only means of preventing the spread of an epidemic. It was probable that owing to the difficulty of diagnosis the number of cases which really occurred was greater than the number reported.

### ADVISORY COUNCIL ON RESEARCH.

As a means of stimulating the industrial development of Canada on scientific lines an honorary advisory council of industrial and scientific research has been appointed by the Canadian Government. Its members are: A. Stanley MacKenzie, Ph.D., President of Dalhousie University, Halifax; F. D. Adams, Ph.D., D.Sc., Dean of the Faculty of Applied Science, McGill University; R. F. Ruttan, M.D., Professor of Organic and Biological Chemistry, McGill University; J. C. McLennan, Ph.D., University of Toronto; A. B. Macallum, M.B., Sc.D., University of Toronto; Walter C. Murray, LL.D., President of the University of Saskatchewan; R. Hobson, of the Steel Company of Canada, Hamilton; R. A. Rose, Consulting Electrical Engineer, Montreal; and Tancrède Bienvenue, General Manager of La Banque Provinciale, Montreal. A subcommittee of council, consisting of Sir George Foster, the Minister of Mines, the Minister of Inland Revenue, the Minister of Labour, and the Minister of Agriculture, has also been appointed to secure the co-operation of other bodies in the work of scientific and industrial research and to submit the most pressing problems presented by industrial necessities to the Research Committee for solution. The utilization of waste products, the discovery of new processes, and the development of the unused natural resources of the country are all subjects that will be investigated.

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THE trustees of the Rockefeller Institute of Medical Research recently resolved that, in view of the decreased purchasing power of fixed salaries caused by the increased cost of living, an additional special compensation, equivalent to 15 per cent. of the current annual salary, be paid to each regular officer and employee on January 5th. This compensation was not to be regarded as an increase of salary or as creating a precedent for the future.

# Correspondence.

### THE INDIAN MEDICAL SERVICE.

SIR,—In your article on the Indian Medical Service in relation to the findings of the recent Commission you make two statements which are of very great importance to any medical man who proposes to enter the Indian Medical Service, namely, (1) the Commissioners "assert that the claim to take fees as a right conferred by statute is mistaken," and (2) they recommend that "steps should be taken to make clear to all officers at the outset of their careers that the permission (to take private practice) is given at the pleasure of Government, and to meet the needs of the country, and not as a matter of right."

The manner in which this recommendation is to be carried into effect is made clear in paragraph 18 of the summary of recommendations, which says, "Civil surgeons and officers holding similar posts . . . should enjoy the privilege of private practice *at the pleasure of Government.* Should it be found necessary to withdraw this privilege in individual cases, a *suitable* monthly allowance should be granted." The italics are my own.

With regard to the first statement, I submit that the question is one of facts. The right is claimed to rest (1) on the East India Company's Act of 1772 (13 Geo. III, c. 63, paras. 24 and 25), quoted at length in the SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL, February 7th, 1914, under the statement submitted by the British Medical Association to the Secretary of State for India; (2) on the inducement held out to applicants for commissions in the Indian Medical Service by the Secretary of State for India in the words, "medical officers are not debarred from taking private practice so long as it does not interfere with their proper duties"; and (3) on the fact that the pay of Indian Medical Service officers was fixed on the assumption that they could considerably augment it by private practice (V, para. 44, Report of the Commission on the Indian Medical Service, Calcutta, March 7th, 1866).

Medical men have entered the Indian Medical Service in the past putting an obvious interpretation on plain statements. If it is true that they have been mistaken, and if it is not the Commissioners who are mistaken, the situation is a very serious one, and it behoves the British Medical Association to watch it most closely in the interests of the officers of that service, who are debarred by discipline from moving in the matter themselves.

Then with regard to the Commissioners' recommendation; it is essential that the young man who proposes to enter the Indian Medical Service should understand clearly what he is committing himself to. There has been, and is, a very strong feeling in that service against the alleged interference with private practice on the part of Government. If it is true that such interference occurred freely at a time when the right to practise was not openly disputed, what will the medical officer of the future have to expect, if the conditions the Commission proposes are brought into force? Let there be no misunderstanding of the position! Indian service is exile. Expenses in the East have gone up by leaps and bounds, and are still going up. The pay of an Indian Medical Service officer to-day does little more than cover his actual living expenses. Any savings he might otherwise make are swallowed up in steamer fares, in sending his wife to the hills, and in the upkeep of an establishment for his children at home. Whether or no the Indian Medical Service is worth an able man entering, turns entirely on whether or no he can make private practice. Even if the right is assured him, it is probable that most men who can do well in India can do better elsewhere. The whole matter is clearly and fairly dealt with in the excellent statement published in the SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL of February 7th, 1914, to which I have already referred. At the request of the Association, I appeared before the Commission when it sat in London in defence of that statement, and no serious attempt was then made to shake or to dispute any of the assertions therein made.

There is another point of very great importance on which careful attention should be focussed. It is dealt with in paragraph 37 of the introductory chapter on the medical services, which refers to the private practice of professors of the Indian medical colleges, etc. In that paragraph we find the following recommendation: "The

officers holding the clinical posts . . . should be allowed private practice, but this should be *restricted to consulting practice* in their own subject, *the term consulting practice being interpreted in the sense understood by London practitioners.*" Again the italics are my own. It is not necessary for the moment to enter into what lies behind this recommendation. The inner meaning of it is well known to officers of the Indian Medical Service. All that need be said is that it contains potentialities for the wreckage of what remains of private practice to the I.M.S. officer. Whether those potentialities develop will depend on the nature of the action taken on the above recommendation. The terms used are too vague for the formation of any definite opinion on this point, but it behoves the British Medical Association to watch with the greatest care the next move in the matter.

In conclusion, I desire to make it clear that I am far from wishing to dissuade any young medical man from entering the Indian Medical Service, but I would warn any who think of doing so, very carefully to read your statement of the position, and I would urge on the British Medical Association the necessity of watching very closely any step that is taken to alter the *status quo* in regard to "the right to private practice" of the Indian Medical Service officers. It is not possible to prevent the Government from altering the *status quo;* but it is possible to ensure that the profession clearly and fully comprehends how the I.M.S. officer of the future stands. It then rests with the young doctor to make his choice of entering the service or of passing it by, with his eyes wide open to the consequences.—I am, etc.,

R. H. ELLIOT,
London, W., Feb. 5th. Lieut.-Col. Indian Medical Service (ret.).

## PROPHYLAXIS OF VENEREAL DISEASES.

SIR,—Dr. T. C. Mackenzie, in his letter to the BRITISH MEDICAL JOURNAL of February 3rd, maintains the view that the prophylaxis of venereal diseases is not exclusively a medical question, but also a moral and religious one. Will you permit a layman, Sir, to take him at his word and express a lay view of the moral aspects of this important problem?

There is no department of science in which knowledge is so much closed to the public as in the sphere of medicine. For one reason or another every kind of obstacle is placed in the way of the layman who desires to study medical science. The powers of science in this most vital department are limited to the close corporation of the medical profession; and knowledge which is of the most fundamental importance to humanity is a monopoly of one of the most powerful trade unions in the world. Now, this exclusive monopoly conferred by society upon the medical profession carries with it responsibilities of a correspondingly stringent character. If we confer upon you the exclusive right to knowledge in medicine, it is because we trust you to exercise that knowledge to the best of your power for preserving us from the horrors of disease. But we do not confer upon you as a profession the option of withholding from us the means of preventing or curing disease. Some members of the medical profession may consider it undesirable to use the powers of medical science in the prevention of certain diseases. To them I reply: You have no right to intrude your personal opinions on the matter. You are not the proprietors of medical science; you are trustees for the public; we have conferred upon you no guardianship over our morals or our consciences; the great position of trust which you occupy is based wholly on your knowledge of medicine, and not upon your theories of social life, as to which some of us may think we are as competent judges as you are. When we come to you for medical advice, we do not think it necessary to inquire first to what denomination you may belong, or what your social theories may be; for we are prepared to argue those problems with you on equal terms. We come to you for your medical knowledge, and for your medical knowledge alone; we come to you to draw the interest on that capital knowledge of which you are the trustees, and you have no right or option to withhold from us the proceeds and benefits of medical knowledge, which are our property and our due, at least as much as they are yours.

Dr. Mackenzie's letter seems to me to show a totally deficient understanding of the duties of the medical profession towards the public. His argument amounts in effect to this: "We are in a position to furnish you with a simple formula, which will protect you effectively against the infection of syphilis. But, if you do that sort of thing, we are not sure that you don't deserve to get syphilis; we know, indeed, that men and women will continue to do that sort of thing; very well, they shall continue to have syphilis." Well, Sir, I contend that no doctor has a right to intrude his personal opinions on a matter of public controversy while he is in the exercise of his professional duties. Many doctors have a profound knowledge of social science; some, however, have none at all; and no qualifications or studies of this character are exacted from those who enter the profession. If we desired you to be the custodians of our souls as well as of our bodies, we should assuredly demand that you passed some special qualifications in this subject before beginning to practise. We have not done so, because it is throwing an impossible burden upon the profession; and because, if any action is required, we prefer to act through our elected representatives in Parliament, who are supposed (absurdly enough, no doubt) to possess some knowledge of social problems.

Let me not be misunderstood. I hold prostitution in at least as great abhorrence as does Dr. Mackenzie, but, I think, for a different reason. That fundamental instinct of humanity which when perverted results in the propagation of syphilis, and which never can be extinguished by all the preaching in the world, should be exercised only in association with true love. In this world, where the daily round is almost exclusively of labours and anxieties, varied by *ennui*, love furnishes the one anchorage of unspeakable happiness and pleasure which redeems life from the flat routine of work and boredom, and constitutes it a blessing of priceless value. Men who are addicted to prostitution know nothing of all this. They are vandals, who drag in the mud the most inestimable gifts of Nature; they have missed all the fullness and greatness of life; they are emotional cripples, who throw away diamonds in their eagerness for paste. Are we, then, to say that, in addition to having missed life and lost a happiness with which no other can compare, they shall also be the victims of an atrocious physical malady which might have been obviated by the slightest medical knowledge? Surely in this matter the verdicts of justice and of kindness are at one.—I am, etc.,

London, S.W., Feb. 5th. HUGH ELLIOT.

## MEDICAL CERTIFICATES AND THE WAR OFFICE.

SIR,—I cannot agree with the views expressed by Mr. Lockhart Mummery *re* medical certificates. It gives one the idea that because they are given free of charge by him they must necessarily be of no value "to any one concerned." I maintain that they are of the greatest value to every one concerned and of most value to the medical boards in accord with the War Office instructions, and (if properly worded and bona fide) of the greatest service to the military authorities and medical boards to enable them to arrive at a correct conclusion as to the fitness of men for service in categories.

If clients do not pay directly for certificates they pay for the consultation which includes them. I have been acting as medical examiner of recruits since mobilization until the work of the regimental medical officer was taken over by boards. In the early days of the war all were volunteers and were anxious to join up. Every trick and subterfuge was practised by unfit men to join—bribery, corruption and impersonation were the order of the day. I was frequently called on to examine a hundred men in an hour. No wonder the hospitals were filled with malingerers and sick men. If every man had brought a certificate from his family doctor (a bona fide certificate) at that time the Government might have been saved thousands of pounds.

The same applies now to the boards. They are composed of men of average training; they cannot be expected to be up to date in every branch of medicine. The limit of examinations is forty a day. Why should they not welcome any genuine information given by the family doctor and specialist? I could recount many cases in which gross injustice might have been done to the individual—his home broken up, his livelihood gone—and

expense to the State simply from want of information from the family doctor as to previous medical history. Does Mr. Mummery in his speciality not look to a previous medical history for information and guidance in making his diagnoses? Does he always examine the lungs and sputa for tubercle bacilli, the urine for sugar, urea, etc., and would he not welcome any information given by the family doctor? I presume his position is that of a consulting specialist. I have frequently asked my patients to be *x*-rayed before presenting themselves at the boards, and the conditions shown by this means were so obvious as not to require a medical examination; in many such cases no symptoms were indicative of the patients' condition.

I have been thanked by medical boards for drawing their attention to mistakes in diagnosis, and I submit that the War Office instruction to medical practitioners has saved all concerned time, trouble, and expense.—I am, etc.,

February 5th. MAJOR R.A.M.C.T.

I append War Office instruction.

*Circular Letter.*

War Office, London, S.W.
June 13th, 1916.

24/General Number 5032 A (A.M.D.3).

Sir,

I am directed to inform you that Army Council Instruction No. 972, forbidding the issue to individual officers and soldiers by officers of the Royal Army Medical Corps and civil practitioners employed on military duties of certificates prejudging questions which have to be decided by medical boards, does not refer to statement of cases required for the information of these boards in order to enable them to arrive at a decision. Such statements should be given as hitherto, but officers and civil practitioners giving them should refrain from expressing their opinions on the questions which the board has to decide.

I am, Sir, your obedient servant,
(Signed) M. W. RUSSELL,
Surgeon-General for Director-General
Army Medical Service.

The Deputy Director of Medical Services, London District.

## THE MOBILIZATION OF THE PROFESSION.

SIR,—The Manchester Medical War Committee and the London Panel Committee are anxious to mobilize other people—a frame of mind not uncommon in wartime—and in that spirit the former body has thought proper to draw up a memorandum for the purpose of conveying information to the Director-General of National Service. What right has this committee to recommend the mobilization of the medical profession without obtaining a mandate from the members of the same? I, personally, was unaware of its very existence until the week before last. There seems to be a crazy notion prevalent that medical men can be moved about the country as easily and usefully as bricklayers' labourers by their trade union. The very reverse is the case. As is properly pointed out by "Rejected," a man may be quite useful "in the place he has chosen because of his limitations," but of greatly reduced value when moved into a strange one. Further, is there sufficient need for it, if American practitioners, well approved of their universities, are willing to undertake duty in this country "for the duration of the war"? In any case, a "referendum" of the profession as a whole should first be taken.—I am, etc.,

January 31st. PANEL PRACTITIONER.

SIR,—I would like to confirm Dr. Clarke's letter regarding men, under military age, remaining at home. I know some who are making largely increased incomes because of the absence of their colleagues on active service. To-day I have received a letter from one who has been two and a half years serving with the colours, and he writes most bitterly. He has received from these colleagues (who were supposed to be looking after his patients) the magnificent sum of 15s. for the two and a half years' work.—I am, etc.,

Plymstock, Feb. 5th. S. NOY SCOTT.

## THE FUTURE OF THE MEDICAL PROFESSION.

SIR,—In reply to Dr. Richard Kay's query (January 27th, p. 153), I can only answer as emphatically as possible—yes.—I am, etc.,

February 3rd. CAPTAIN R.A.M.C.(T.F.).

## THE MEASURE OF THE POTENCY OF ANTISEPTICS—THEIR THERAPEUTIC VALUE IN WOUNDS.

SIR,—I do not wish to question the utility of flavine, for if we accept the figures which Dr. Browning gives, even judging by the tests I suggest, it ought to turn out one of the best antiseptics we have. I write to point out that in his reply he has not answered my criticism that his tables do not give a practical estimate of the potencies, not only of the antiseptics in common use, but also of flavine. Instead he ridicules—and ridicule is a powerful weapon—my suggestion that an antiseptic to be effective in a dressing must at least prevent the growth of organisms in pus, and even considers it a "great departure from the rational conception of the practical problems involved" in adequately treating a wound. On the other hand, I would submit that in estimating the antiseptic potency, the leaving out of account the infected cells clearly indicates a failure even to approach a rational conception of those problems.

Wherein does my experiment differ from the actual conditions in the pus-coated superficial tissues of a wound? For practical purposes chiefly in this, that in my experiments the antiseptic is mixed with the cellular elements, and comes into action immediately, whereas in the wound we have to wait for diffusion to take place before the antiseptic can take effect. My experiment is deficient because it does not take into account the uncertainty due to diffusion. Rather than being too severe a test, it therefore favours the antiseptic. Of course the potency of an antiseptic cannot be tested in a wound by mixing it with the infected cells of which the surface of the wound consists; but by taking the antiseptic and mixing it with pus, we can find out how effective it would be if, by diffusion, it got into the granulation tissue or into the surface pus. If therefore an antiseptic cannot prevent the growth of organisms in pus *in vitro*, it certainly is not going to do so in the infective tissues and pus of a wound. Since in pus Dr. Browning finds flavine four times as effective as carbolic acid, although in serum 800 times, for practical purposes, I consider the reasonable inference to be that, other things being equal, flavine is, not 800 times, but four times as effective as carbolic acid.

The practical problem of finding an effective antiseptic for irrigation, Dr. Browning does not touch. Dakin's solution, he agrees, is a suitable fluid, but in virtue of its mechanical detergent action and not its antiseptic properties. This is clear, for he couples it with saline, and then speaks of the "advantages which would be gained by the employment, in addition, of an efficient antiseptic." As Dr. Browning's experiments do not deal with this problem, I do not think he is justified, especially when advocating another antiseptic, in passing this adverse judgement on Dakin's solution without giving a better reason than a mere opinion. There is a whole mass of opinion to the contrary, and this I consider is justified experimentally.

For these reasons I maintain that Dr. Browning's experiments do not give a practical estimate of the potency of antiseptics.—I am, etc.,

Warrington, Feb. 3rd. WM. PARRY MORGAN.

## AUXILIARY R.A.M.C. FUNDS.

SIR,—The committee of the above funds is now prepared to receive and consider applications for assistance from the guardians of orphans in straitened circumstances, of officers of the auxiliary R.A.M.C. (the Special Reserve, Territorial Force, and the new armies), who are eligible, their fathers having been killed in action, died of wounds or disease contracted in the service, or have held their commissions in the auxiliary R.A.M.C. during the present war.

The object of the Officers' Benevolent Branch is to afford relief to those orphans of commissioned officers who may be left under circumstances of peculiar distress, or who may be enabled by a small addition to their incomes at a certain period of their lives to procure a better education than their limited means would otherwise admit.

As the committee expect to receive a large number of applications it is hoped that all those officers who have not yet become subscribers will kindly do so, and so help with

timely assistance to give a start in life to the orphans of their brother officers.—I am, etc.,

F. W. H. DAVIE HARRIS,
Lieut.-Colonel (R.P.),
Secretary.

124, Victoria Street, S.W.,
February 2nd.

OFFICERS' BENEVOLENT BRANCH.

The following further donations have been received during 1916 in addition to those acknowledged in our issue of November 18th, 1916, p. 704. (Donors of £15 15s. become life members under Rule II.):

*Sum of £140.*—Per Lieutenant-Colonel Sir William Osler, Bt.[1]
*Sum of £105.*—Messrs. Holt and Co.
*Sum of £52 10s.*—Lieutenant-Colonel Sir W. Arbuthnot Lane, Bt.
*Sum of £50.*—Medical Insurance Agency.
*Sum of £26 5s.*—Captain E. D. Telford.
*Sums of £20.*—Major A. H. Griffith, Dr. F. Kennedy (New York).
*Sum of £11 11s.*—Major B. W. Broad.
*Sums of £10 10s.*—Lieutenant-Colonels A. G. Hay, A. F. Hurst, Sir William Osler, Bt., J. W. Smith; Majors E. J. T. Cory, T. K. Mours, J. D. Slight; Captains A. B. Kelly, E. I. P. Pellew; Lieutenant W. MacDermott.
*Sums of £10.*—Colonel G. F. Rowcroft, Drs. A. F. Gardner and A. Lynden.
*Sums of £6 6s.*—Lieutenant-Colonel W. F. Haslam, "Sigma."
*Sum of £6 5s. 11d.*—Captain F. G. Thomas.
*Sums of £5 5s.*—Colonels F. S. Penny and H. Tooth, C.M.G.; Lieutenant-Colonels F. A. Southam and Sir Nestor Tirard; Majors R. J. Abrahams, F. Charlesworth, A. Lucas, R. P. R. Lyle, J. W. Russell, T. S. Short, R. Stirling, G. G. Turner, R. B. Wild; Captains A. Donald, Ellwood, S. H. Hay, C. P. Lapage, D. S. Page, H. R. Sedgwick, C. Singer, W. Stobie, H. H. Taylor, W. Turner; Drs. D. Bower, H. W. Gardner, J. C. M. Given, G. D. Laing, O. May, G. C. B. Mieville; Mr. A. Winkfield, F.R.C.S.
*Sums of £5.*—Lieutenant-Colonel D. G. Crawford; Captains B. E. A. Batt, F. A. Dick, W. E. C. Lunn, A. H. Manfield, H. H. Smith, J. B. Woodrow, R. B. Yates; Surgeon W. H. Butcher, R.N.; Drs. A. Atkinson, C. C. Coles.
*Sums of £1 4s.*—Lieutenant-Colonel R. W. E. Roe, D.S.O.; Captain J. A. Liley.
*Sums of £4.*—"J. G. P.," Drs. L. Paulley, A. Thomson.
*Sums of £3 3s.*—Lieutenant-Colonel J. Michell Clarke; Major C. Lewis; Captains J. E. Cook, J. Laurie, G. E. Nelligan, T. J. Mills; Drs. E. S. Cooke, L. C. Dobson.
*Sums of £3.*—"Anonymous"; Lieutenant-Colonel W. Brooks.
*Sums of £2 2s.*—Lieutenant-Colonels C. W. Mansell-Moullin, R. Pratt; Majors P. Davidson, C. B. Turner; Captains W. E. Alderson, F. G. Armstrong, P. S. Clarke, C. E. Droop, R. C. Leonard, H. C. Martin, N. I. Spriggs, R. Thomson; Lieutenant S. E. Bethell; Drs. A. Bagshawe, J. M. Bennion, A. Cohen, R. Crawfurd, W. J. Dewar, F. Hinds, Mary Hunt, J. B. Hurry, R. Kay, Miss Stirling; Messrs. A. K. Barrett, C. J. Evers, R. Pye-Smith, H. Willson.
*Sums of £1 1s.*—Lieutenant-Colonel A. E. Wear; Majors O. L. Appleton, C. W. Buckley, S. R. Gibbs; Captains F. Darlow, A. Latham, J. Macfarlane, C. D. Lindsay, D. J. McAfee, A. C. Robertson, T. S. Slessor; Dr. A. Cox; Miss Mary Barrett.

[1] A portion of this sum was included in the previous list.

# Obituary.

DR. RICHARD LIEBREICH, distinguished as an ophthalmologist, a painter, and a sculptor, died in Paris on January 29th. He had been a naturalized Frenchman for more than fifty years. He was born at Königsberg on June 30th, 1330, and was therefore in his eighty-seventh year. He studied medicine at the university of his native city, at Berlin, and at Halle, where he took his doctor's degree in 1853. He afterwards worked under Donders at Utrecht and Bruecke at Berlin, and was assistant in von Graefe's clinic from 1854 to 1862. He gave special attention to ophthalmoscopy, and in 1863 published the first atlas of the subject, a third edition of which appeared in Berlin in 1885. He settled in Paris as an ophthalmologist in 1862, but left that city on the outbreak of the war in 1870, and came to London, where he became a member of the Royal College of Surgeons in 1871, and was appointed ophthalmic surgeon to St. Thomas's Hospital. After some years he gave up hospital work and limited his private practice, devoting himself more and more to art. He applied his knowledge of the eye to the elucidation of the technique of painters, and showed much subtlety in tracing peculiarities of colouring in various masters to defects and changes in the visual apparatus. As an instance may be cited his study of the works of Turner and Mulready, whose growing eccentricities of colour in their later years he contended were due to corresponding changes in the eye; by the use of appropriate glasses, reproducing the condition of the artist's eyes at different stages in the development of the defect, the strange colouring was made normal. These studies were embodied in a lecture entitled "Turner and Mulready: the effect of certain faults of vision on painters, with especial reference to their works." This lecture, with two others on the real and ideal in portraiture and on the deterioration of oil paintings, delivered in 1875 and 1878, was published in a volume which appeared in 1888. Liebreich returned to Paris, where he spent the last years of his life. He was an officer of the Legion of Honour. He was the author of a monograph on school life in its influence on sight and figure, published in London in 1872; of a description of a new method of cataract extraction (Berlin, 1872); of papers on leukaemic retinitis and embolism of the cerebral artery of the retina, on the predisposition to retinitis pigmentosa shown by children born of consanguine marriages, and on accommodation; of articles on amaurosis and amblyopia, and of various contributions to von Graefe's *Archiv für Ophthalmologie*. He invented an instrument to prevent poisoning by atropine.

COLONEL THOMAS HOLBEIN HENDLEY, C.I.E., Bengal Medical Service (retired), died at his residence in London, after a long illness, on February 2nd. He was born on April 21st, 1847, and educated at St. Bartholomew's Hospital, where he was junior scholar in anatomy and physiology and senior scholar in medicine, surgery, and midwifery, and attracted the favourable notice of Paget, Savory, and other distinguished teachers. He took the diplomas of L.R.C.P., M.R.C.S., and L.S.A. in 1869. Entering the I.M.S. as assistant surgeon on October 1st, 1869, he became surgeon on July 1st, 1873, surgeon-major on October 1st, 1881, brigade-surgeon lieutenant-colonel on April 1st, 1894, and colonel on April 1st, 1898, retiring on April 1st, 1903. He spent the greater part of his service—from 1873 to 1897—as Residency Surgeon of Jeypore, for the last three years of that period being also Administrative Medical Officer of the Rajputana States. In 1897 he was appointed to act as Inspector-General of Civil Hospitals in the North-west Provinces, and on April 1st, 1898, was appointed to the same post in Bengal, which he held till he retired in 1903. He received the C.I.E. on January 1st, 1891, and the Volunteer Officer's Decoration on June 18th, 1896. He had no war service, but was well known as an authority on Indian art. In 1883 he organized the Jeypore Exhibition, and afterwards the Jeypore Museum; he was one of the founders of the *Quarterly Journal of Indian Art*, and was the author of several works on that subject: *Ulwar and its Art Treasures, Handbook on Jeypore and its Arts, Jeypore Enamels, Damascening on Steel in India*. He was also the author of *Rulers of India and Chiefs of Rajputana*, a *Medico-topographical Account of Jeypore*, and of the *Medical Gazetteer of Rajputana*. Colonel Hendley worked with enthusiasm for the Ambulance Association of St. John of Jerusalem, and was appointed a Knight of Grace. He was made a Fellow of the University of Calcutta, trustee of the Indian Museum, and vice-president of the Bengal Asiatic Society. On his return to England he took an active interest in the meetings of the West London Medico-Chirurgical Society, of which he was elected president in 1908. Colonel Hendley led a very strenuous life, and will rank among those who have really understood India and the true signification of mid-Eastern ideas and art.

IT was with great regret that members of the profession in Montreal learnt of the sudden death of Dr. HENDERSON, which occurred on New Year's Day from pneumonia. John Alexander Henderson was born in Paris, Ontario, on October 28th, 1868. He was educated at Orangeville, and before embarking upon the study of medicine taught for two or three years. He then entered the faculty of medicine of McGill University, won the Sutherland gold medal in his third year, and graduated in 1893 as first prizeman. After a year spent as house-surgeon in the Montreal General Hospital, Dr. Henderson went into practice in Montreal. He was appointed demonstrator in anatomy at McGill University in 1894, and in 1913 assistant professor of anatomy, and for the last two years,

during the absence on active service of Dr. A. C. Geddes, he had taken full charge of the work. He was a great favourite with the students, his kindly disposition and genial manner endearing him to everbody. Dr. Henderson married in 1896 Miss Vesta Hersey, who with three children survives him. She is closely connected with many of the women's associations in Montreal, and only recently returned from England, where she went with a party of Volunteer Aid Detachment nurses from Montreal.

# The Services.

## ROYAL NAVAL MEDICAL SERVICE.

*Domville Memorial Gift.*

A RECIPIENT of the Domville Memorial Gift of £6 yearly for three years will be elected on March 14th, 1917. The recipient must be the child of a deceased naval medical officer in necessitous circumstances and under 15 years of age. Further information can be obtained from the Honorary Secretary, Domville Memorial Gift, Haslar Hospital, Gosport, to whom particulars of claim and birth certificates must be forwarded on or before March 12th.

## ROYAL ARMY MEDICAL CORPS.

*Removal of the Dépôt from Aldershot.*

WE understand that the War Office has decided to remove the Royal Army Medical Corps Dépôt from Aldershot, where it has been for some five-and-thirty years. The ground assigned is, we believe, that the site is required for other military purposes. The decision is the cause of very great regret to officers of the Royal Army Medical Corps, who have regarded the existence of a training school in a great military centre such as Aldershot as very conducive to the efficient training of officers and men of the corps. It is said that the dépôt is to be established at Blackpool, Lancashire.

### EXCHANGES.

CAPTAIN R.A.M.C.T., 1st Northern General Military Hospital, Brighton Grove (Venereal) Section, Newcastle-on-Tyne, desires to exchange with M.O. in military hospital in South of England.—Apply to Captain A. H. Davis, 1st Northern General Hospital, Brighton Grove Section, Newcastle-on-Tyne.

M.O. in charge troops Northern Command, wishes to exchange with M.O. in charge troops Western Front.—Address No. 549, BRITISH MEDICAL JOURNAL Office, 429, Strand.

## INDIAN MEDICAL SERVICE.

LIEUTENANT-COLONEL PATRICK BALFOUR HAIG, M.B., I.M.S., has been appointed to be a Companion of the Bath.

# Medical News.

CAPTAIN JULIUS HENRY BEILBY, R.A.M.C., of Bromsgrove, who was killed in action in Egypt on April 23rd, left estate valued at £36,574.

MR. JONATHAN HUTCHINSON, F.R.C.S., will give an Hunterian Lecture before the Royal College of Surgeons of England, on Monday next, at 5 p.m., upon Dupuytren's contraction and Dupuytren's life and surgical works.

AT a general meeting of the Medico-Psychological Association at 11, Chandos Street, London, W., on Thursday next, at 3 p.m., Dr. Robert Armstrong-Jones will read a paper on dreams and their interpretation, with reference to Freudism.

As announced in our advertisement columns, applications for foundation scholarships, pensionerships, and annuities at the June election of the Epsom College must be delivered at the office of the college, 37, Soho Square, London, W., by February 28th.

DEMONSTRATIONS of the methods of administering drugs having the same therapeutic effect as salvarsan will be given at the London Hospital on Tuesdays, at 1 o'clock. Further particulars can be obtained on application to the secretary of the London Hospital Medical College.

THE first Portuguese National Congress on Physical Education was held at Lisbon in June, 1916. Resolutions were passed urging that a normal institute of gymnastics should be created; that together with compulsory physical training in schools a system of medical inspection, including services of oto-rhino-laryngology and psychiatry, should be organized; that swimming should be taught in primary schools, and that playgrounds, swimming-baths, and shooting ranges should be established and maintained by the municipalities. It was further resolved that in all schools and lyceums chairs of physical training should be created, and that attendance at the courses should be compulsory; and that in all universities and secondary schools arrangements should be made for the preparatory military instruction of officers.

# Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediocera, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

## QUERIES.

### INCOME TAX.

WHILE "P. E. M." was acting as honorary surgeon to the Red Cross in France his salary for a local appointment was received by him in full, but he paid his own substitute. Can this payment be deducted by him for income-tax purposes?

*** Yes. It may be arguable on a strict interpretation of the Acts that "P. E. M." should pay on the full salary and deduct tax *pro rata* from his substitute, but in practice the necessity for this is obviated by reducing the original charge and dealing separately with the liability of the deputy. This is especially convenient under the present system of graduated rates of duty. We suggest that "P. E. M." should place the facts before the local surveyor of taxes, and request an adjustment of his assessment on the lines indicated above.

### CHILBLAINS.

DR. E. B. HAZLETON (Sheffield) writes: Thousands of young people in this part of the country (South Yorkshire) are suffering on hands and feet from a severe form of chilblains. I attribute this to the almost complete absence of eggs from the daily diet. I usually prescribe a mixture containing liq. calcis sacch. ʒj and calc. chloride gr. v, to be taken in milk thrice a day, and pil. aloes et ferri gr. iv once daily, but should be glad of the experience of others.

## LETTERS, NOTES, ETC.

A MILITARY CORRESPONDENT writes to suggest that the pages of the different pamphlets issued from time to time by the War Office for the use of medical officers should be of uniform size, so that they could be kept together in a reading case and bound for reference.

### COMPOSITION OF "LUBAFAX."

MESSRS. BURROUGHS WELLCOME AND CO. (London) write: In the report of Mr. Frank S. Kidd's third lecture on diseases of the male urethra, printed in the BRITISH MEDICAL JOURNAL of January 27th, p. 114, it is stated that "Lubafax" is copied from Casper's formula, which contains oxycyanide of mercury. We think it desirable to state that "Lubafax" is an entirely original preparation, it is not copied from Casper's formula, and it contains no poisonous substance as an antiseptic.

### SUPERNUMERARY NIPPLES.

DR. STANLEY C. JELLICOE (Totnes) writes: When examining Derby recruits I had three men in four days with supernumerary nipples. One had one, another two, and the third three. All were in a line with the normal nipple. I have not seen one before or since.

DR. A. J. YOUNG, of Whitefield, Manchester, sends a photograph of a native woman of Northern Nigeria, taken a few years ago, and showing two supernumerary nipples, or mammae, disposed symmetrically, the lower on each side being a little interior to what appears to be the main nipple.

CAPTAIN T. W. LEIGHTON, R.A.M.C., writes to record two cases of supernumerary nipples in recruits appearing at Mill Hill, both on the same day, a week or two ago. Both were on the left side about one inch below the normal nipple; there was in each case a distinct areola and hairs.


**SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.**

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